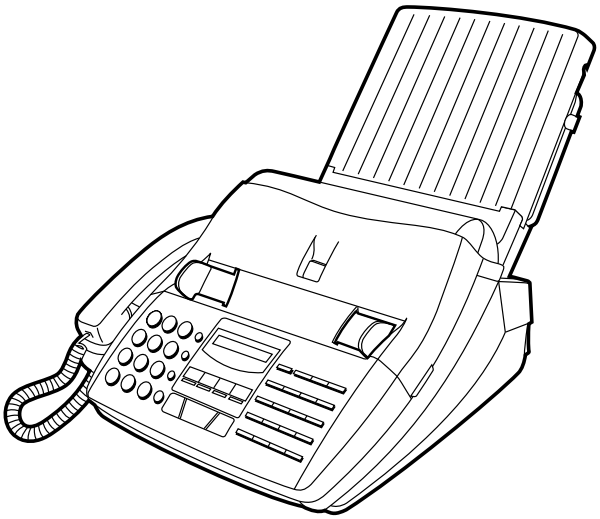
SHARP SERVICE MANUAL

No. 00ZUX600MUSME



FACSIMILE

UX-600M
MODEL FO-1660

CONTENTS

CHAPTER 1. GENERAL DESCRIPTION
[1] Specifications 1-1
[2] Operation panel 1-2
[3] Transmittable documents 1-3
[4] Installation 1-4
[5] Quick reference guide 1-9
[6] Option imaging film specifications (UX-15CR/FO-15CR) 1-11

CHAPTER 2. ADJUSTMENTS
[1] Adjustments 2-1
[2] Diagnostics and service soft switch 2-2
[3] Troubleshooting 2-17
[4] Error code table 2-18

CHAPTER 3. MECHANISM BLOCKS
[1] General description 3-1
[2] Disassembly and assembly procedures 3-4

CHAPTER 4. DIAGRAMS
[1] Block diagram 4-1
[2] Wiring diagram 4-2
[3] Point-to-point diagram 4-3

CHAPTER 5. CIRCUIT DESCRIPTION
[1] Circuit description 5-1
[2] Circuit description of control PWB 5-2
[3] Circuit description of TEL/LIU PWB 5-9
[4] Circuit description of power supply PWB 5-12
[5] Circuit description of CCD PWB 5-12

CHAPTER 6. CIRCUIT SCHEMATICS AND PARTS LAYOUT
[1] Control PWB circuit 6-1
[2] TEL/LIU PWB circuit 6-10
[3] Power supply PWB circuit 6-12
[4] CCD PWB circuit 6-14
[5] Operation panel PWB circuit 6-15
[6] Multifunction interface PWB circuit 6-17

CHAPTER 7. OPERATION FLOWCHART
[1] Protocol 7-1
[2] Power on sequence 7-2

CHAPTER 8. OTHERS
[1] Service tools 8-1
[2] IC signal name 8-4

PARTS GUIDE

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's
instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type recommandé par le constructeur.
Mettre au rébut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfare vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrekter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

CHAPTER 1. GENERAL DESCRIPTION

[1] Specifications

Applicable telephone line: Public switched telephone network

Compatibility: ITU-T (CCITT) G3 mode

Configuration: Half-duplex, desktop transceiver

Memory size*: 512 KB (approx. 30 average pages with ECM function off)

Compression scheme: MH, MR, MMR

Scanning method: Flat-bed, solid-state CCD

Resolution:
Horizontal:
203 lines/inch (8 dots/mm)
Vertical:
Standard–98 lines/inch (3.85 lines/mm)
Fine/Halftone–196 lines/inch (7.7 lines/mm)
Super fine–391 lines/inch (15.4 lines/mm)

Recording system: Thermal transfer recording

Display: 7 x 5 dots, 1 line by 16-digit display

Reception modes: Auto/Manual

Modem speed: 14400 bps with automatic fallback to 12000, 9600, 7200, 4800, or 2400 bps

Transmission time* : Approx. 6 seconds (Memory TX)

Effective recording width: 8.0" (203 mm)(average)

Input document size:
Automatic feeding:
Width — 5.83 to 8.5" (148 to 216 mm)
Length — 5.04 to 11" (128 to 279 mm)
Manual feeding:
Width — 5.83 to 8.5" (148 to 216 mm)
Length — 5.04 to 39.4" (128 to 1000 mm)

Effective scanning width: 8.3" (210 mm) max.

Automatic document feeder: 20 sheets max.

Halftone (gray scale): 64 levels

Contrast control: Automatic/Dark selectable

Copy function: Single/Multi-copy/Sort-copy (99 copies/page)

Telephone function: Standard
(cannot be used if power fails)

Power requirements: 120 V AC, 60 Hz

Operating environment: 41 to 95°F (5 to 35°C), 20 to 80 % RH

Power consumption: Stand-by: 5 W
Maximum: 100 W

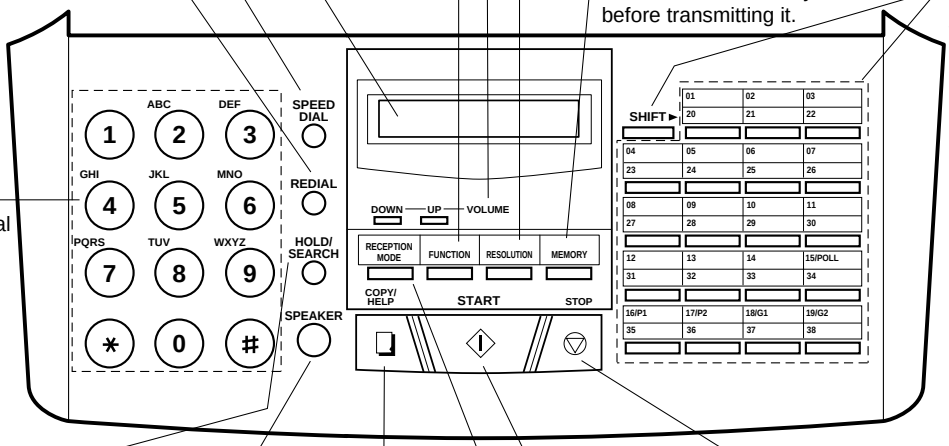
Dimensions: Width: 14.4" (365 mm)
Depth: 13.9" (353 mm)
Height: 7.6" (193 mm)(Without attachments)

Weight: Approx. 10.4 lbs. (4.7kg)

* Based on ITU-T (CCITT) Test Chart #1 at standard resolution in MMR (Memory Transmition), excluding time for protocol signals (i.e., ITU-T phase C time only).

As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for procduct improvement without prior notice. The performance specifications figures indicated are nominal values of production units. There may be some deviation from these values in individual units.

[2] Operation panel



VOLUME keys
Press these keys to adjust the volume of the handset when the handset is lifted, the volume of the speaker when the **SPEAKER** key has been pressed, or the volume of the ringer at all other times.

SPEED DIAL key
Press this key to dial a 2-digit Speed Dial number.

Display
This displays various messages during operation and programming.

RESOLUTION key
Press this key to adjust the resolution and contrast before sending or copying a document.

REDIAL key
Press this key to automatically redial the last number dialed.

FUNCTION key
Press this key to select various special functions.

MEMORY key
Press this key to scan a document into memory before transmitting it.

Rapid Dial Keys
Press one of these keys to dial a fax or voice number automatically. To dial the bottom number on a Rapid Key, press the SHIFT key before pressing the Rapid Key. (Note that you must attach the Rapid Key labels.)

Number keys
Use these keys to dial numbers, and enter numbers and letters during number/name storing procedures.

HOLD/SEARCH key
Press this key to search for an automatic dialing number, or, during a phone conversation, press this key to put the other party on hold.

SPEAKER key
Press this key to dial a number without picking up the handset.

COPY/HELP key
When a document is in the feeder, press this key to make a copy. At any other time, press this key to print out the Help List, a quick reference guide to the operaion of your fax.

START key
Press this key to send or receive a document.

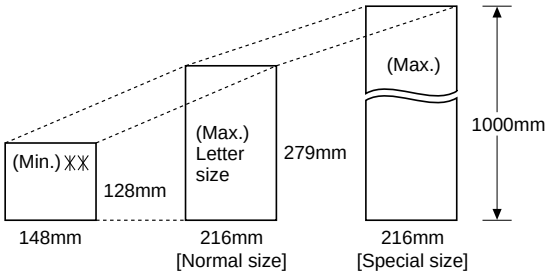
STOP key
Press this key to stop the operation before it is completed.

RECEPTION MODE key
Press this key to select the mode of reception.

[3] Transmittable documents

1. Document Sizes

Normal size	width	5.83"–8.5"(148 – 216 mm)
	length	5.04" – 11"(128 – 279 mm)



XX Use document carrier sheet for smaller documents.

* With special sizes, only one sheet can be fed into the machine at a time. Insert next page into feeder as current page is being scanned.

2. Paper Thickness & Weight

Normal size	ADF 10 sheets	Thickness	2.4×10^{-3}–4.7×10^{-3}inch (0.06–0.12 mm)
		Weight	0.15×10^{-3}lbs/inch^2 (52–104g/m^2) (14–28lbs)
	ADF 20 sheets	Thickness	2.4×10^{-3}–3.5×10^{-3}inch (0.06–0.09 mm)
		Weight	0.77×10^{-3}–0.11×10^{-3}lbs/inch^2 (52–74.3g/m^2) (14–20lbs)
Special size		Thickness	4.7×10^{-3}–7.9×10^{-3}inch (0.12–0.20 mm)
		Weight	0.15×10^{-3}–0.20×10^{-3}lbs/inch^2 (52–157 g/m$^{2)}$

3. Document Types

- Normal paper

  Documents handwritten in pencil (No. 2 lead or softer), fountain pen, ball-point pen, or felt-tipped pen can be transmitted.
  Documents of normal contrast duplicated by a copying machine can also be transmitted.

- Diazo copy (blue print)

  Diazo copy documents of a normal contrast may be transmitted.

- Carbon copy

  A carbon copy may be transmitted if its contrast is normal.

4. Cautions on Transmitting Documents

- Documents written in yellow, greenish yellow, or light blue ink cannot be transmitted.
- Ink, glue, and correcting fluid on documents must be dry before the documents can be transmitted.
- All clips, staples and pins must be removed from documents before transmission.
- Patched (taped) documents should be copied first on a copier and then the copies used for transmission.
- All documents should be fanned before insertion into the feeder to prevent possible double feeds.

5. Automatic Document Feeder Capacity

Number of pages that can be placed into the feeder at anytime is as follows:

Normal size: max. ADF 20 sheets (14 lbs – 20 lbs)

Special size: single sheet only (manual feed)

NOTES:
- When you need to send or copy more pages than the feeder limit, place additional pages in feeder when last page in feeder is being scanned.
- Place additional pages carefully and gently in feeder.

  If force is used, double-feeding or a document jam may result.

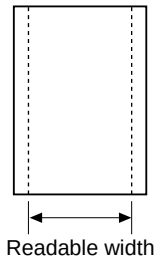
6. Readable Width & Length

The readable width and length of a document are slightly smaller than the actual document size.

Note that characters or graphics outside the effective document scanning range will not be read.

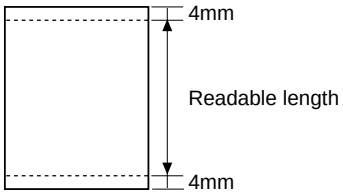
- **Readable width**

210 mm, max.



- **Readable length**

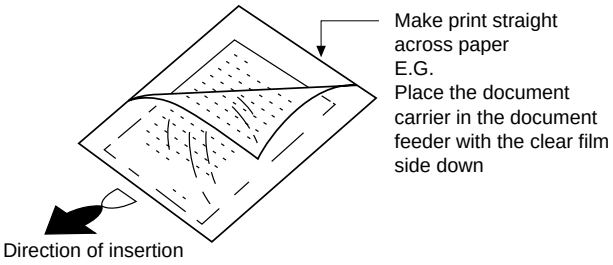
This is the length of the document sent minus 0.16" (4 mm) from the top and bottom edges.



7. Use of Document Carrier Sheet

A document carrier sheet must be used for the following documents.

- Those with tears.
- Those smaller than size 5.83"(W) x 5.04"(L) (148 mm (W) x 128 mm (L)).
- Carbon-backed documents


Make print straight across paper
E.G.
Place the document carrier in the document feeder with the clear film side down
Direction of insertion

NOTE: To transmit a carbon-backed document, insert a white sheet of paper between the carbon back of the document and the document carrier.

- Those containing an easily separable writing substance (e.g., tracing paper written on with a soft, heavy lead pencil).

NOTES:
- When using the document carrier, carefully read the instructions written on the back.
- If the document carrier is dirty, clean it with a soft, moist cloth, and then dry it before using for transmission.
- Do not place more than one document in the carrier at a time.

[4] Installation

1. Site selection

Take the following points into consideration when selecting a site for this model.

ENVIRONMENT

- The machine must be installed on a level surface.
- Keep the machine away from air conditioners, heaters, direct sunlight, and dust.
- Provide easy access to the front, back, and sides of the machine.

  In particular, keep the area in front of the machine clear, or the original document may jam as it comes out after scanning.
- The temperature should be between 5° and 35°C.
- The humidity should be between 30% and 85% (without condensation).

ELECTRICITY

120V, 60Hz, grounded (3-prong) AC outlet is required.

Caution!

- Connection to a power source other than that specified will cause damage to the equipment and is not covered under the warranty.
- If your area experiences a high incidence of lightning or power surges, we recommend that you install a surge protector for the power and telephone lines. Surge protectors can be purchased at most telephone specialty stores.

If the machine is moved from a cold to a warm place...

If the machine is moved from a cold to a warm place, it is possible that the reading glass may fog up, preventing proper scanning of documents for transmission. To remove the fog, turn on the power and wait approximately 2 hours before using the machine.

TELEPHONE JACK

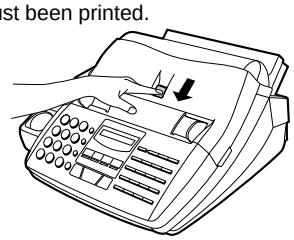
A standard RJ11C telephone jack must be located near the machine. This is the telephone jack commonly used in most homes and offices.

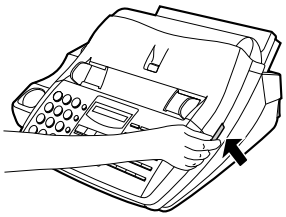
- Plugging the fax machine into a jack which is not an RJ11C jack may result in damage to the machine or your telephone system. If you do not know what kind of jack you have, or needed to have one installed, contact the telephone company.

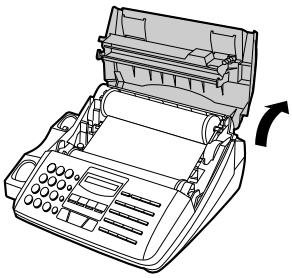
2. Loading the imaging film (Refer to pape) (UX-15CR: UX-600MU/MC) (FO-15CR: FO-1660U/C)

① Press the release marked **OPEN** and open the print compartment cover.

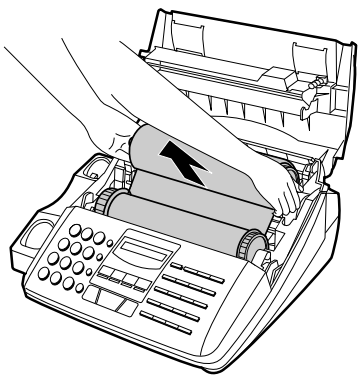
- **Caution!** The printing head (the strip of metal on the underside of the cover) applies heat to the printing film. It may be hot if a document has just been printed.

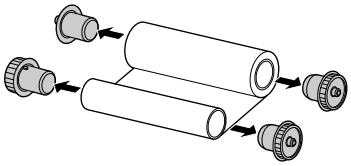






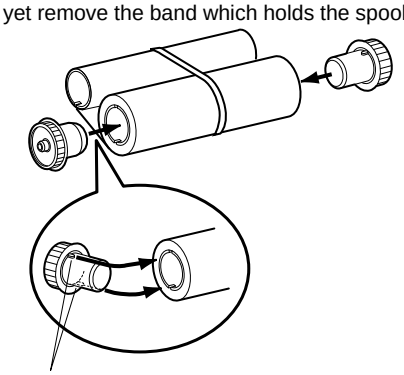
② If you are replacing the imaging film, take the old film out of the printing compartment and remove the three (3) green gears and the green flange from the ends of the spools.
DO NOT DISCARD THE GREEN GEARS AND THE GREEN FLANGE!



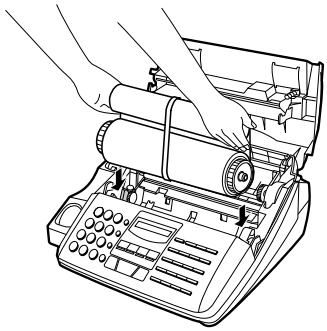


③ Take the new film out of its package, and insert two of the gears provided with the fax into the ends of the spool with film. Make sure that the two tabs on the gears fit properly into the slots in the ends of the spool.

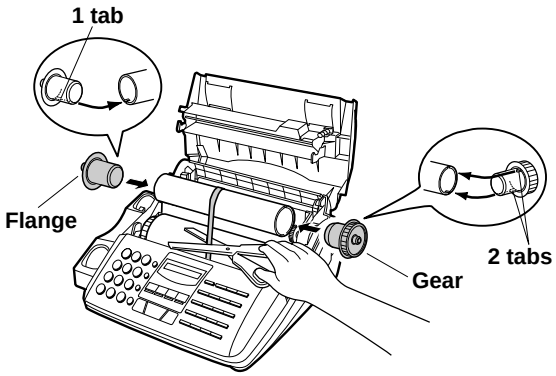
- Do not yet remove the band which holds the spools together.



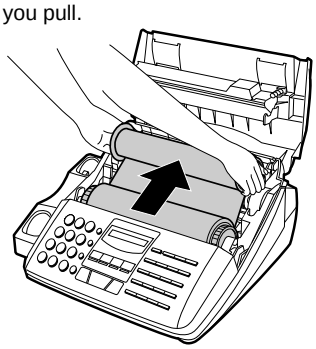
④ Hold the empty spool so that the end with only one slot is on the left, and lower the spools into the front of the printing compartment. The gears in the ends of the spool with film should fit into the slots on each side of the printing compartment.



⑤ Cut the band which holds the spools together with scissors, and remove it. Insert the remaining gear into the right end of the empty spool and the flange into the left end of the empty spool. Make sure the tabs on the gear and the flange fit into the slots in the ends of the spool (the gear has two tabs and the flange has one tab).

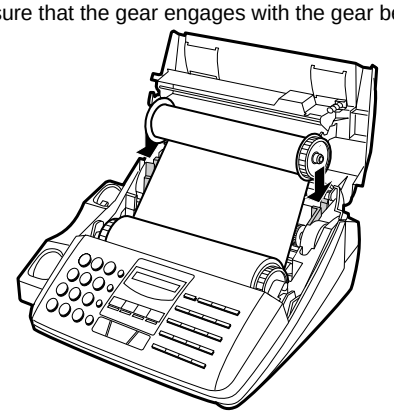


⑥ Pull the empty spool toward the back of the compartment, unwinding the film as you pull.

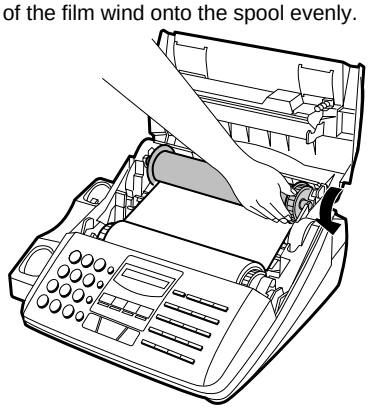


⑦ Insert the empty spool into the back of the compartment so that the gear and the flange fit into the slots on the sides of the compartment.

- Make sure that the gear engages with the gear below it.

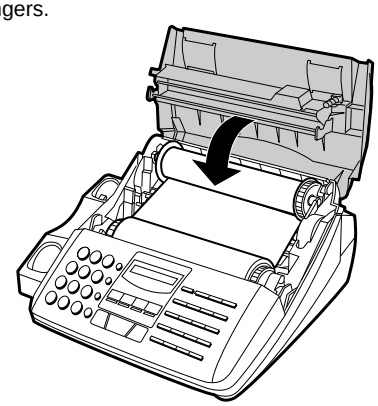


⑧ Wind the film slightly (rotate the gear on the right side of the empty spool) so that there is no slack in the film. Make sure that both edges of the film wind onto the spool evenly.

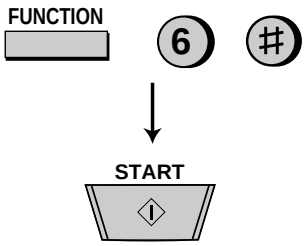


⑨ Close the print compartment cover, making sure it clicks into place.

- **Caution!** Close the cover slowly to make sure it doesn't pinch your fingers.



⑩ If you replaced the film, initialize the new film by pressing the **FUNCTION** key, the "**6**" key, and the "**#**" key on the operation panel. Make sure that INITIALIZE FILM appears in the display, and then press the **START** key. (Do not perform this step if you installed the initial sample roll of film.)

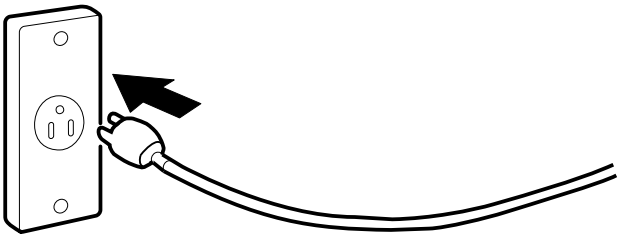


3. Assembly and connections

① Plug the power cord into a 120 V, 60 Hz, grounded (3-prong) outlet.

Caution: Do not plug the power cord into any other kind of outlet. This will damage the machine and is not covered under the warranty.

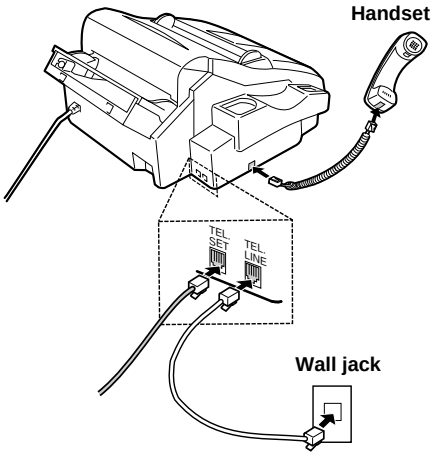
AC outlet



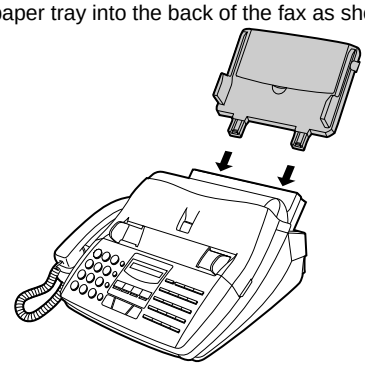
② Connect the handset as shown and place it on the handset rest.

Insert one end of the telephone line cord into the "**TEL. LINE**" jack. Insert the other end into a standard (RJ11C) single-line telephone wall jack.

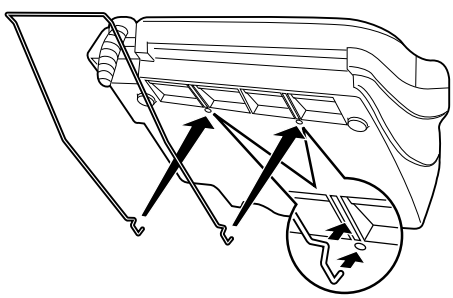
Be sure to insert the telephone line cord into the "**TEL. LINE**" jack. **Do not** insert into the "**TEL. SET**" jack.



③ Insert the paper tray into the back of the fax as shown.



④ If desired, attach the original document support by inserting the ends into the holes in the bottom of the fax as shown.



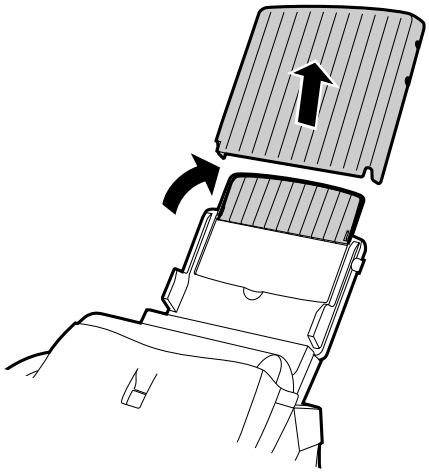
4. Loading printing paper

The paper tray holds the paper on which received documents and copies are printed. Up to 200 sheets of letter or legal size paper from 16 to 20 lbs. (60 to 75 g/m^2) can be loaded in the tray. Less sheets can be loaded when using heavier paper. The maximum allowed paper weight is 24 lbs. (90 g/m^2).

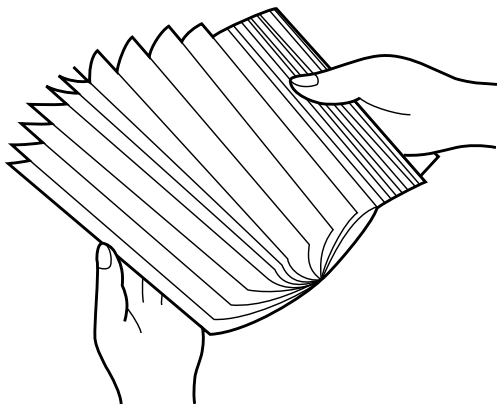
Note: When receiving or copying documents, do not allow more than 100 pages to collect in the received document outlet. Otherwise, the outlet may become obstructed, causing paper jams.

① Remove the paper cover if it is on the paper tray.

- If you are going to load legal size paper, flip up the paper tray extender.

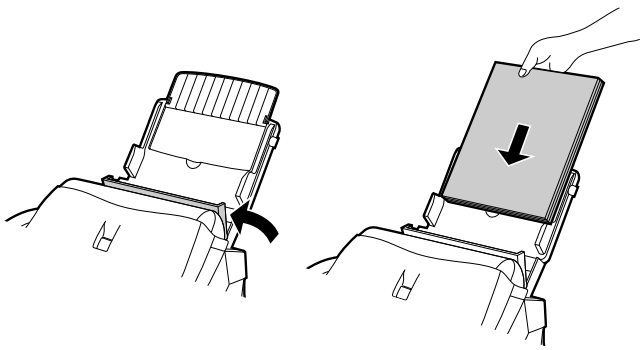


② Fan the paper, and then tap the edge against a flat surface to even the stack.



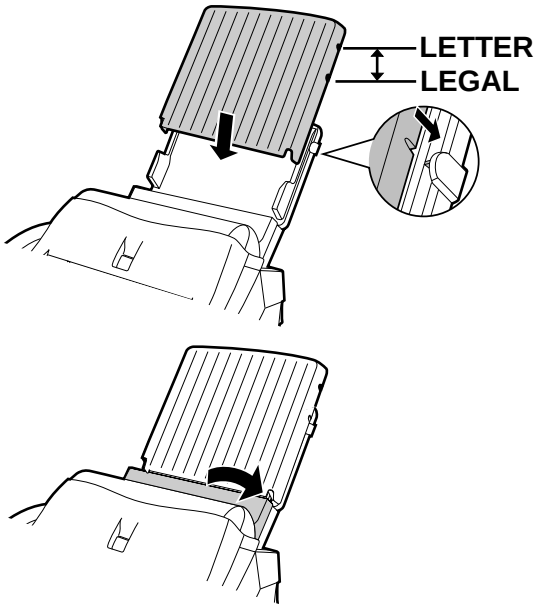
③ Pull the paper release plate toward you and insert the stack of paper into the tray, print side down.

- If paper remains in the tray, take it out and combine it into a single stack with the new paper before adding the new paper.

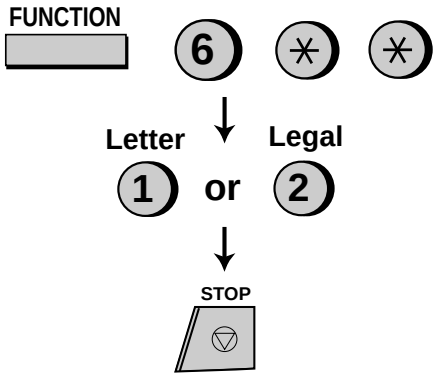


④ Replace the paper cover on the paper tray and then push the paper release plate back down.

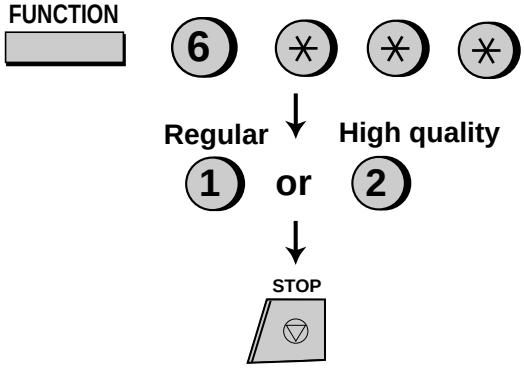
- **Important:** Be sure to replace the paper cover **before** you push the paper release plate down.



⑤ Your fax has been set at the factory to scale the size of the printed image to letter size paper. If you have loaded legal size paper, you must change this setting to legal. Press the "**FUNCTION**" key, the "**6**" key, the "✳" key twice, and then press "**1**" to select letter, or "**2**" to select legal. When finished, press the **STOP** key. Be sure to change this setting every time you change the paper size.



⑥ Your fax has been set at the factory to print on regular paper. If you have loaded high quality thermal transfer paper, you must change this setting to "HIGH QUALITY". Press the "**FUNCTION**" key, the "**6**" key, the "✳" key three times, and then press "**1**" to select regular, or "**2**" to select high quality paper. When finished, press the **STOP** key. Be sure to change this setting again if you change back to regular paper.

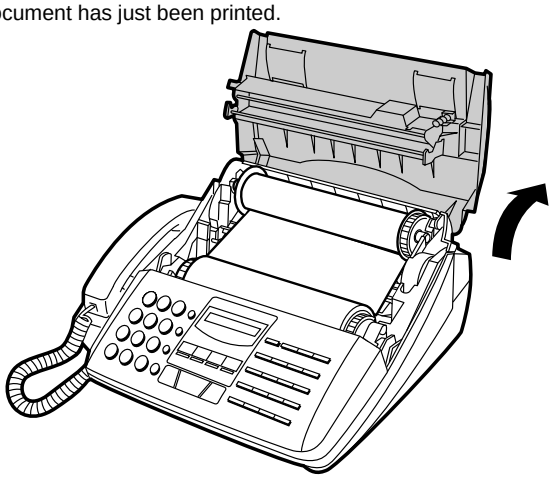


5. Clearing paper jams

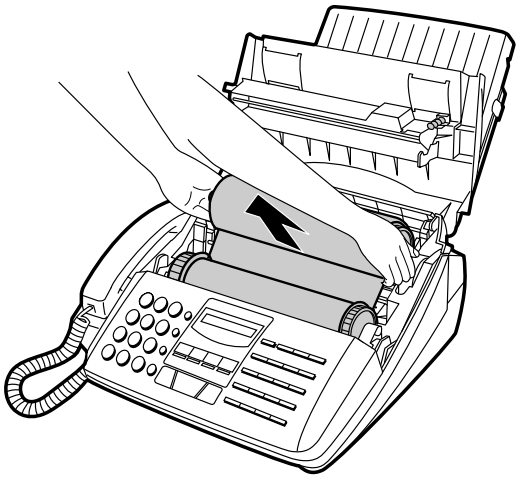
If a document doesn't feed properly during transmission or copying, or DOCUMENT JAMMED appears in the display, first try pressing the **START** key. If the document doesn't feed out, open the operation panel (grasp the front edge at the "**PANEL RELEASE**" mark and pull up) and pull it out gently.

① Press the release marked **OPEN** and open the print compartment cover.

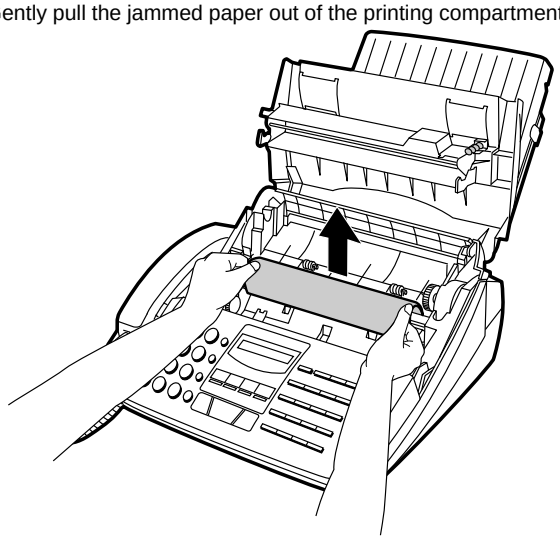
- **Caution!** The printing head (the strip of metal on the underside of the frame) applies heat to the printing film. It may be hot if a document has just been printed.



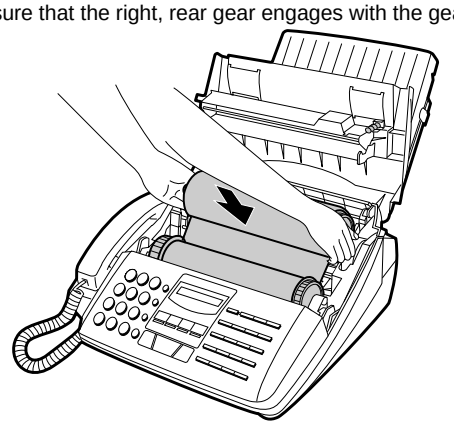
② Remove the imaging film from the printing compartment and set it on a sheet of paper.



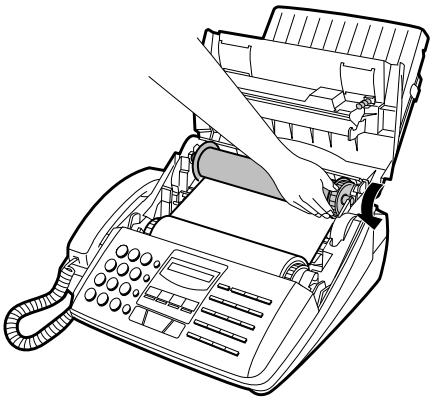
③ Gently pull the jammed paper out of the printing compartment.



④ Replace the imaging film, making sure that the flange goes into the rear slot on the left side of the printing compartment. Also, make sure that the right, rear gear engages with the gear below it.

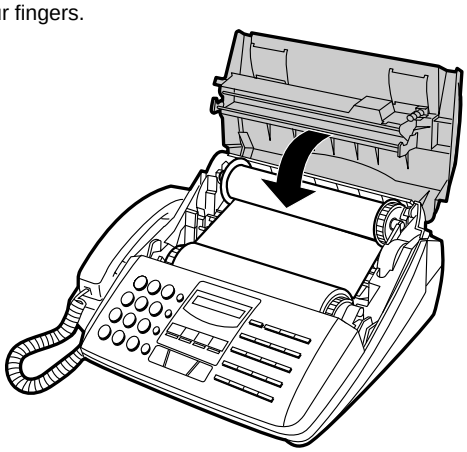


⑤ Wind the film slightly (rotate the gear on the right side of the empty spool) so that there is no slack in the film. Make sure that both edges of the film wind onto the spool evenly.



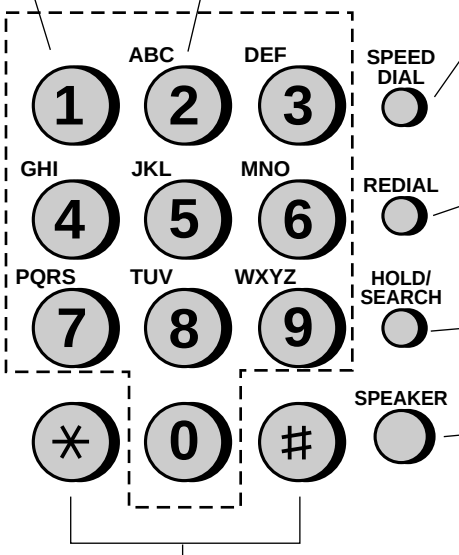
⑥ Close the print compartment cover, making sure it clicks into place.

- **Caution!** Close the cover slowly to make sure it doesn't pinch your fingers.



Space
Press this key twice to enter a space.

Letters and numbers
To enter a letter or number, press the appropriate key repeatedly until the desired number/letter appears in the display (the number appears first, then the letters in the order marked above the key).



Delete
Press this key to delete the letter highlighted by the cursor (if the cursor is to the right of the last letter entered, it will backspace and delete the last letter).

Shift
Press this key once to change case (press it again to change back).

Cursor left
Press this key to move the cursor to the left.

Cursor right
Press this key to move the cursor to the right.

Symbols
Press either key repeatedly until the desired symbol appears (see the symbol list on the following page).

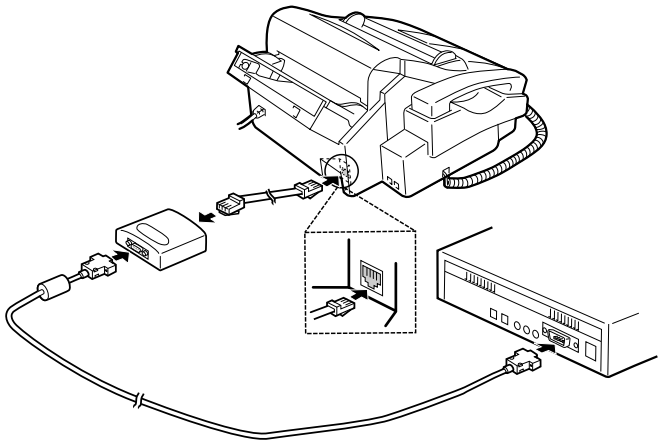
5. Connecting the Multifunction interface box

The Multifunction Interface kit which comes with your fax machine allows you to use your fax as a printer and scanner, and lets you perform fax operations from your computer via the fax modem in your fax machine. Follow the steps below to connect the Multifunction Interface box and cables.

Important:

Use only the provided interface cable and modular plug cable.

1. Make sure that your fax is unplugged and the power switch is turned off on your computer.
2. Insert the female end of the interface cable into the serial (RS232C) port on your computer. Tighten the screws with a screwdriver.
3. Insert the male end of the interface cable into the port on the Multifunction Interface box. Tighten the screws with a screwdriver.
4. Insert one end of the modular plug cable into the socket on the Multifunction Interface box, and the other end into the socket on your fax as shown (the ends of the cable are identical).

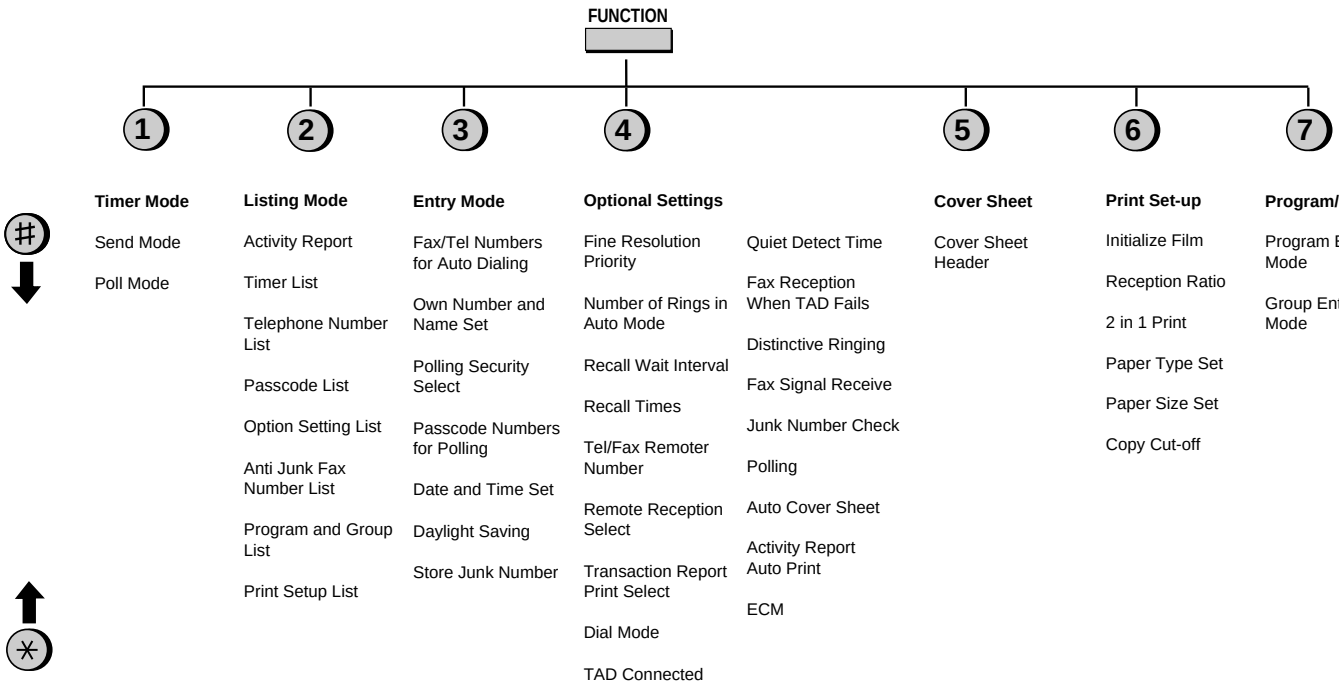


[5] Quick reference guide

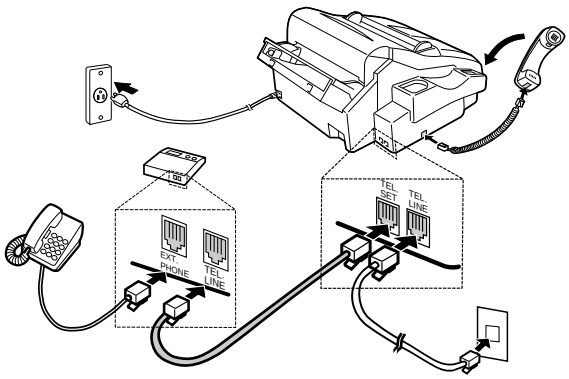
FUNCTION key menu

The following chart shows the layout of the functions and settings accessed by pressing the **FUNCTION** key. First press the **FUNCTION** key, the appropriate numeric key as shown, and then "#" or "＊" until the desired item appears.

Instructions for making each setting appear in the display. If you have any difficulty, refer to the detailed instructions on the page shown below the setting.



INSTALLATION



1. Connect the handset as shown.
2. Plug one end of the telephone line into the "TEL. LINE" jack on the rear of the fax, and the other end into your telephone wall jack.
3. Plug the power cord into a grounded, 120 V outlet.

INSTALLATION WITH AN ANSWERING MACHINE AND/OR EXTENSION TELEPHONE

4. Remove the seal covering the "TEL. SET" jack on the rear of the fax. Connect an extension telephone or answering machine to the "TEL. SET" jack.
5. If desired, connect an extension phone to the answering machine.

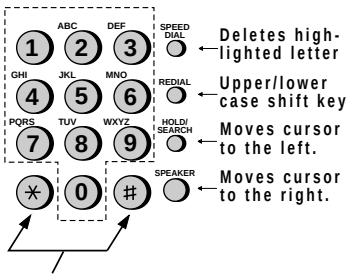
ENTERING YOUR NAME AND NUMBER

FCC regulations require your name and fax number to appear on all documents you send. To program your fax to do this automatically, follow the steps below:

1. Press the **FUNCTION** key and then press "**3**": FUNCTION 3
   "ENTRY MODE" will appear in the display.
2. Press the "#" key twice: # #
   "OWN NUMBER SET" will appear in the display.
3. Press the **START** key: START
4. Enter your fax number (max. of 20 digits) by pressing the number keys.

♦ If you make a mistake, press the **HOLD/SEARCH** key to move the cursor back to the mistake, then enter the correct number or letter. (To move the cursor forward, press the **SPEAKER** key.)

5. Press the **START** key: START
6. Enter your name by pressing the appropriate number keys as shown below. Press each key one or more times until the desired letter appears in the display.



Press either key one or more times to select and enter a symbol.

♦ Enter a space with the "**1**" key.

♦ To enter two letters in succession which require using the same key, press the **SPEAKER** key after entering the first letter.

Example: To enter "ABZ Co.", press:

"2" twice for the letter A,

Press **SPEAKER** to move the cursor to the right,

"**2**" three times for the letter B,

"**9**" five times for the letter Z,

"**1**" twice for a space,

"**2**" four times for the letter C,

Press **REDIAL** for a lower case letter,

"**6**" four times for the letter O,

"**#**" once for a period.

7. When finished, press the **START** key and then the **STOP** key. START STOP

SETTING THE DATE AND TIME

To set date and time, press the following keys: FUNCTION 3 * * *

"DATE & TIME SET" will appear in the display.

Press the **START** key: START

Enter two digits for the Month (01 through 12).

Enter two digits for the Date (01 through 31).

Enter two digits for the Year (00 through 99).

Enter two digits for the Hour (01 through 12).

Enter two digits for the Minute (00 through 59).

Press the " * " key for A.M. or the "#" key for P.M.

When finished, press the **START** key and then the **STOP** key: START STOP

STORING AND CLEARING NUMBERS FOR AUTOMATIC DIALING

To store a new number or change an existing number, press the following sequence of keys:

FUNCTION 3 #

"FAX/TEL # MODE" will appear in the display.

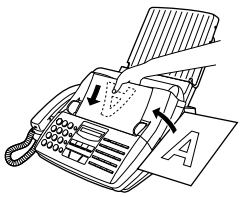
1. Press the "**1**" key: 1
2. Enter a 2-digit number (from "01" to "99") by pressing the number keys. This will be the Speed Dial number.
3. Enter the full telephone/fax number.
4. Press the **START** key: START
5. Enter the name of the location by pressing number keys (max. of 20 characters).
6. Press the **START** key: START
7. Return to Step 3 to store another number, or press **STOP** to exit.

To clear a Speed Dial number, press the following sequence of keys: FUNCTION 3 #

Press "**2**" and then enter the 2-digit Speed Dial number.

Press: START STOP

SENDING DOCUMENTS



Place your document (up to 20 pages) face down in the document feeder.

Normal Dialing

1. Lift the handset or press SPEAKER
2. Dial the fax number by pressing the number keys.
3. Wait for the reception tone (if a person answers, ask them to press their Start key).
4. Press your **START** key and then replace the handset.

Rapid Key Dialing

Press the appropriate Rapid Key (if the Rapid key is from 20 to 38, press the **SHIFT** key first). Transmission will begin.

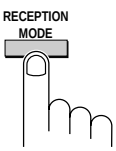
Speed Dialing

1. Press the **SPEED DIAL** key: SPEED DIAL
2. Enter the Speed Dial number by pressing the number keys.
3. Press: START

Direct Keypad Dialing

1. Enter the fax number by pressing the number keys.
2. Press: START

RECEIVING DOCUMENTS



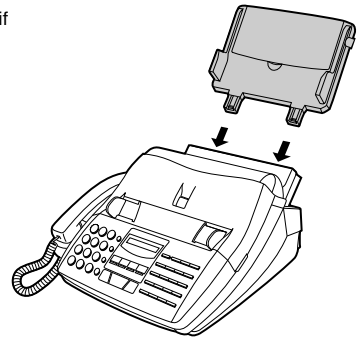
Press the **RECEPTION MODE** key until "AUTO" or "MANU" appears in the display.

AUTO reception: The fax will automatically answer after four rings and receive the incoming documents.

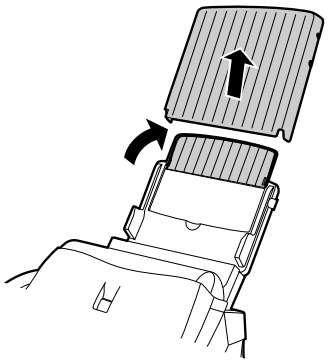
MANUAL reception: Lift the handset when the fax rings. If you hear a fax tone, wait until "RECEIVING" appears in the display, then hang up (if "RECEIVING" doesn't appear, press the **START** key). If the calling party talks to you, press your **START** key to begin reception.

Loading paper

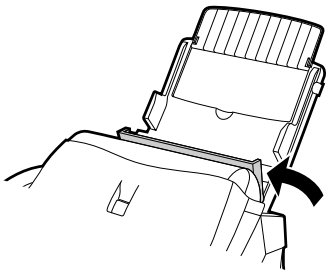
1. Insert the paper tray into the fax if not yet installed.



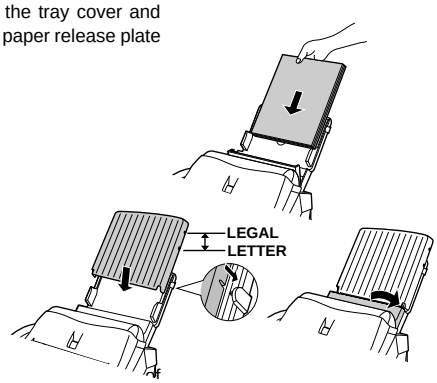
2. Remove the paper cover if it is on the tray. (For legal paper, flip up the tray externder.)



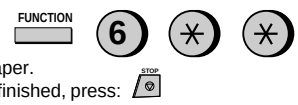
3. Pull the paper release plate toward you.
   - ♦ If any paper remains in the tray, take it out and combine it into a single stack with the new paper.



4. Insert the stack of paper into the tray. Replace the tray cover and then push the paper release plate back down.

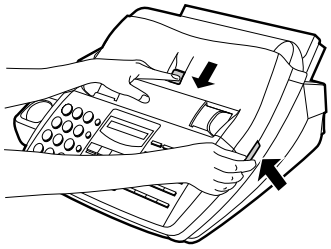


5. Press tl
   keys:
   Press "**1**" if you loadeď letter size paper, or "**2**" if you loaded legal size paper.
   When finished, press:

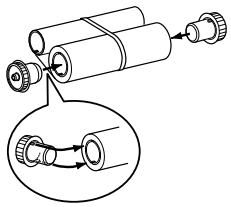


Installing the imaging film

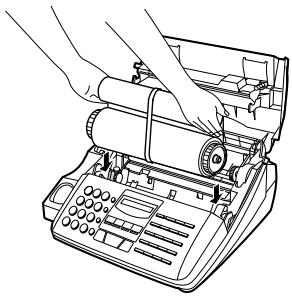
1. Press the release marked **OPEN** and open the print compartment cover.



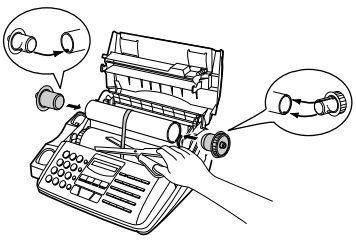
2. Insert two of the gears into the ends of the spool with film.



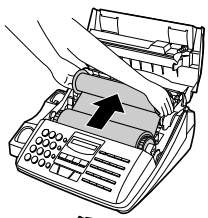
3. Hold the empty spool so that the end with only one slot is on the left, and lower the spools into the printing compartment so that the gears fit into the slots on each side of the compartment.

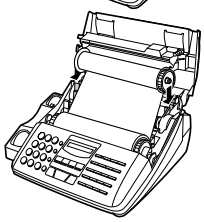


4. Cut the band holding the spools together with scissors, and remove it. Insert the remaining gear into the right end of the empty spool and the flange into the left end of the empty spool.

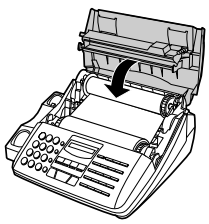


5. Pull the empty spool toward the back of the compartment, unwinding the leader from the spool with film. Insert the empty spool into the compartment so that gear and spool fit into the slots on each side of the compartment.





6. Wind the film slightly to remove slack and then close the printer compartment cover.

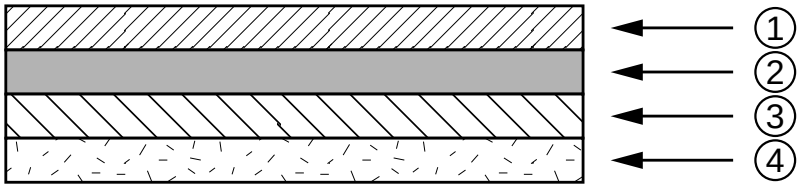


7. If you replaced the film. press the following sequence of keys (this is not necessary for the sample film included with the fax):

[6] Option imaging film specifications (UX-15CR/FO-15CR)

1. Structure

This article is composed of polyester film coated with heat-resistant layer, matt layer and hot melt ink layer, leader film and paper core. Ink film specification is "DNP standard ink film HC".



① Heat Resistant Layer
② Base Film
③ Matt Layer
④ Hot melt Ink Layer

2. Details of compositions

2-1. Base film

Heading	Requirements	Measuring method
Material	Polyethylene-terephthalate	–

2-2. Heat resistant layer

Heading	Requirements	Measuring method
Grade	HR Mixer P-5	–

2-3. Matt layer

Heading	Requirements	Measuring method
Grade	ML Sumi	–

2-4. Hot melt ink layer

Heading	Requirements	Measuring method
Grade	#507W	–

M E M O

CHAPTER 2. ADJUSTMENTS

[1] Adjustments

General

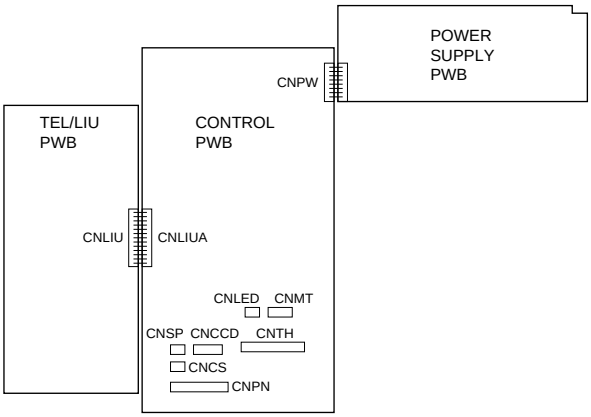
Since the following adjustments and settings are provided for this model, make adjustments and/or setup as necessary.

1. Adjustments

Adjustments of output voltage (FACTORY ONLY)

1. Install the power supply unit in the machine.
2. Set the recording paper and document.
3. When the document is loaded, power is supplied to the output lines. Confirm that outputs are within the limits below.

Output voltage settings



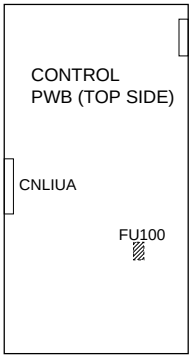
Output	Voltage limits
+5V	4.75V ~ 5.25V
V-REG	7.0V ~ 8.2V
+24V	23.3V ~ 24.7V

Connector No. Pin No.	CNPW
1	MG
2	MG
3	MG
4	+24V
5	+24V
6	DG
7	+5V
8	DG
9	V-REG

2. IC protectors replacement

ICPs (IC Protectors) are installed to protect the motor driver circuit. ICPs protect various ICs and electronic circuits from an overcurrent condition.

The location of ICPs are shown below:



(1) FU100 (ICP-S07) is installed in order to protect IC's from an over-current generated in the motor drive circuit. If FU100 is open, replace it with a new one.

3. Settings

(1) Dial mode selector

DIAL mode (Soft Switch No. SWB4 DATA No. 3)

(step 1) Select "OPTION SETTING".

KEY: [FUNCTION] (4)

DISPLAY: [OPTION SETTING] ⇔ [PRESS ✳ OR #]

(step 2) Select "DIAL MODE".

KEY: (#)(#)(#)(#)(#)(#)(#)(#)

Cursor
When initially registering, the mode shows 1=TONE. When registering again, the mode which was registered formerly is shown.

DISPLAY: [DIAL MODE] ⇔ [1=TONE, 2=PULSE]

(step 3) Select, using "1" or "2".

KEY: (1)

DISPLAY: [TONE SELECTED]

KEY: (2)

DISPLAY: [PULSE SELECTED]

(step 4) End, using the "STOP" key.

KEY: [▽] STOP

[2] Diagnostics and service soft switch

1. Operating procedure

(1) Entering the diagnostic mode

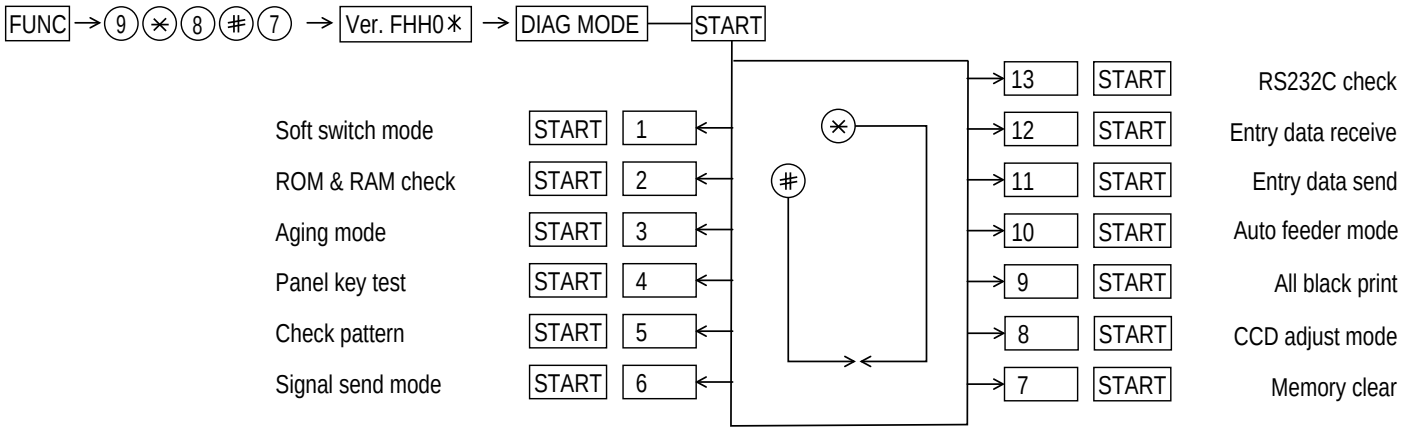
Press [FUNC] → [9] → [✳] → [8] → [#] → [7] , and the following display will appear.

[ROM Ver. FHH0✳] After 2 sec: [DIAG MODE]

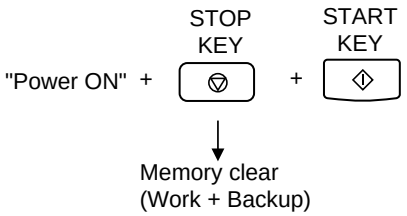
FHH0✳

Then press the [START] key and country name selected by country select will appear. Select the desired item with the [✳] key or the [#] key or select with the rapid key. Enter the mode with the START key.

(Diag•specifications)


FUNC → 9 ✳ 8 # 7 → Ver. FHH0✳ → DIAG MODE — START
Soft switch mode START 1
ROM & RAM check START 2
Aging mode START 3
Panel key test START 4
Check pattern START 5
Signal send mode START 6
13 START RS232C check
12 START Entry data receive
11 START Entry data send
10 START Auto feeder mode
9 START All black print
8 START CCD adjust mode
7 START Memory clear

If the dial mode cannot be set, repeat the dial mode operation, performing the following operation.
After the power is turned on and "WAIT A MOMENT" is indicated, press the STOP key.



"Power ON" and keep the STOP key pressed while "WAIT A ...." is indicated.
Press the START key when "MEMORY CLEAR?" appears.

2. Diagnostic items

ITEM No.	DIRECT key	Contents	Function
1	1	SOFT SWITCH MODE	Soft switches are displayed and changed. List can be output.
2	2	ROM & RAM CHECK	ROM is sum-checked, and RAM is matched. Result list is output.
3	3	AGING MODE	10 sheets of check patterns are output every 5 minutes per sheet.
4	4	PANEL KEY TEST	Panel keys are tested.
5	5	CHECK PATTERN	Check pattern is output.
6	6	SIGNAL SEND MODE	Various signals of FAX communication are output.
7	7	MEMORY CLEAR	Back-up memory is cleared, and is set at delivery.
8	8	CCD ADJUST MODE	Optical system is adjusted.
9	9	ALL BLACK PRINT	To check the print head, whole dots are printed over the interval of 2 m.
10	10	AUTO FEEDER MODE	Insertion and discharge of document are tested.
11	11	ENTRY DATA SEND	Registered content is sent.
12	12	ENTRY DATA RECEIVE	Registered content is received, and its list is output.
13	13	RS232C CHECK	Checks RS232C interface box.

3. Diagnostic items description

3. 1. Soft switch mode

Used to change the soft switch settings.

The soft switch which is stored internally is set by using the keys.

The available soft switches are SW-A1 to SW-M2.

The content of soft switches is shown in page 2-5 to 2-16.

The contents are set to factory default settings.

3. 2. ROM & RAM check

ROM executes the sum check, and RAM executes the matching test. The result will be notified with the number of short sounds of the buzzer as well as by printing the ROM & RAM check list.

Number of short sounds of buzzer 0 → No error
1 → ROM error
2 → RAM error (32Kbyte)

3. 3. Aging mode

If any document is first present, copying will be executed sheet by sheet. If no document is present, the check pattern will be printed sheet by sheet. This operation will be executed at a rate of one sheet per 5 minutes, and will be ended at a total of 10 sheets.

3. 4. Panel key test

The mode is used to check whether each key properly operates or not. Since the key is displayed on LCD when the key on the operation panel is pressed, press all the keys. Here, finally press STOP key. When STOP key is pressed, the keys not judged as "pressed" are output in the result list. (The result list is not output in the process-diagnosis mode.) Here, the LED port can be turned on for CCD adjustment during the time from the start of the panel check mode to the end with the stop key.

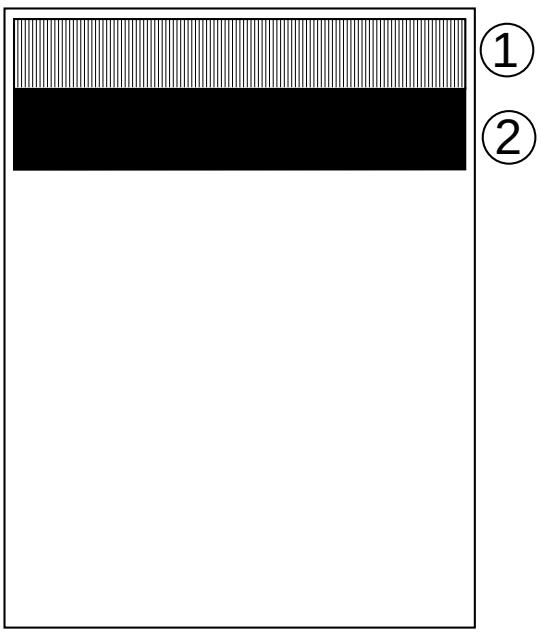
3. 5. Check pattern

The mode is used to check the state of the printing head. It is ended with the following pattern printed on one printing sheet.

① Longitudinal stripe 2 Approx. 30 mm

2 black dots and 2 white dots are repeatedly progressed on one line.

② Full black Approx. 30 mm



3. 6. Signal send mode

The mode is used to send various signals to the circuit during FAX communication. Every push of START key sends a signal in the following sequence. Moreover, the signal sound is also output to the speaker when the line monitor of the soft switch is on.

[1] No signal (CML signal turned on)
[2] 9600bps
[3] 7200bps
[4] 4800bps
[5] 2400bps
[6] 300bps (FLAG)
[7] 2100Hz (CED)
[8] 1100Hz (CNG)
[9] END

The signal can be checked by plugging the handset into the TEL line connector on the rear of the machine.

3. 7. Memory clear

This mode is used to clear the backup memory and reset to the default settings.

3. 8. CCD adjust mode

This mode is used to adjust the optical system. Since the copy is function performed, set the original. To abort the copy operation, press the STOP key. To restart press the START key. When the copy is completed or when the STOP key is pressed in the interruption state, exit from this mode occurs.

3. 9. All black print

The mode is used to check the state of the printing head and intentionally overheat it. Whole dots are printed over the interval of 2 m. If it is overheated or the printing sheet is jammed, press STOP key for the end.

3. 10. Auto feeder mode

The mode is used to check the auto feed function by inserting and discharging the document. In this mode, the feed of the document will be automatically tested if the document is set. Moreover, the number of fed documents will be counted and be displayed on LCD.

3. 11. Entry data send

This mode is used to send the registered data to the remote machine and make the remote machine copy the registered information. When this mode is used for sending, the remote machine must be set to the entry data receive mode.

The information to be sent is as follows.

1. Telephone number registration list
2. Sender registration list
3. Setting of optional setting
4. Soft switch setting
5. Junk FAX number
6. Timer reservation data (timer-communicatable type)
7. Bus code No. (only for the type with hold function)
8. Program/group information
9. Security switch for hold time
10. Registration data of caller ID and concerned
11. Setting of printer and concerned

3. 12. Entry data receive

This mode is used to receive the registered data which is sent from the remote machine and to register the received data in the machine. When this mode is used to receive the information, the remote machine must be set to the entry data send mode.

The information to be sent is as follows.

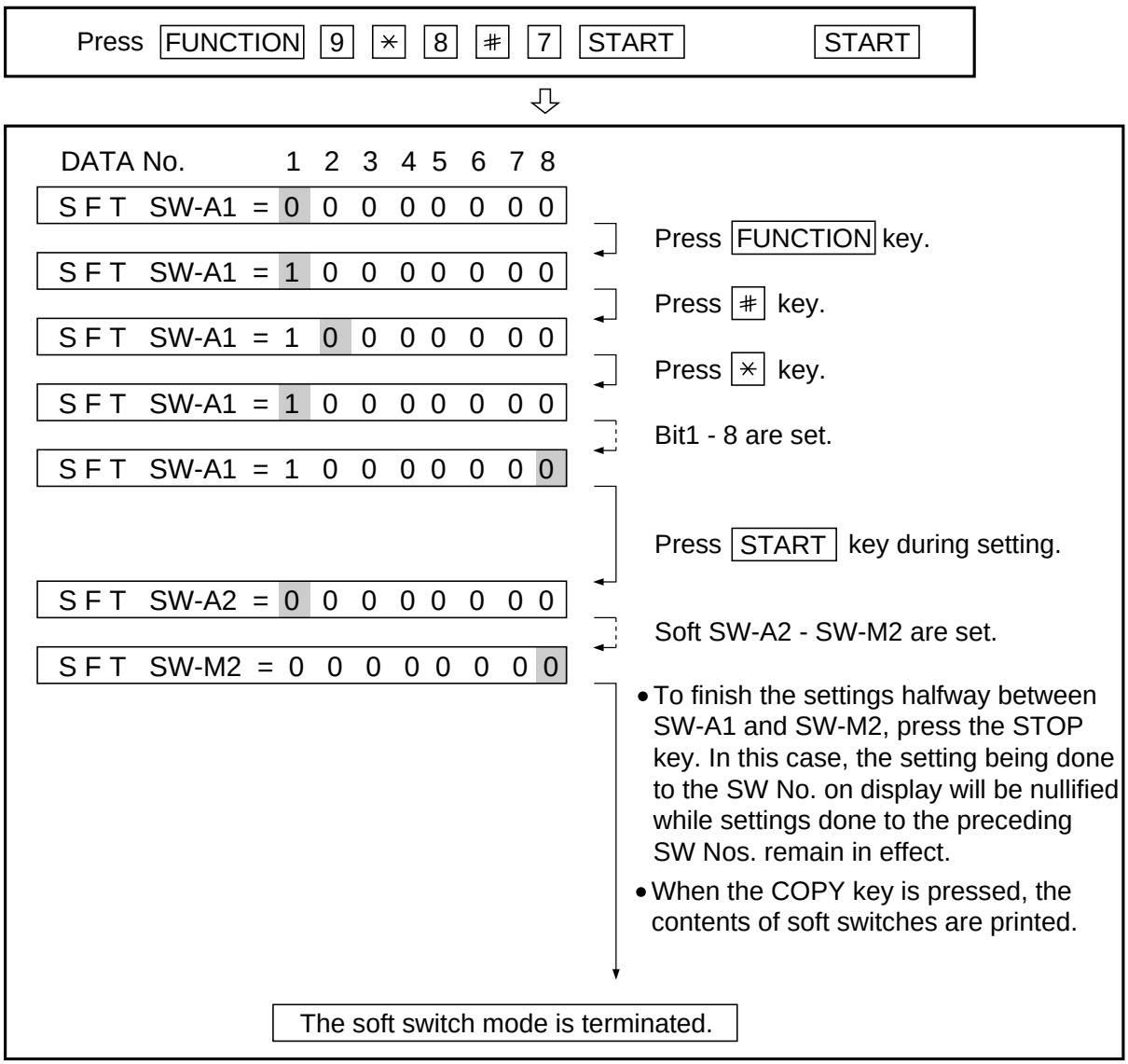
1. Telephone number registration list
2. Sender registration list
3. Setting of optional setting
4. Soft switch setting
5. Junk FAX number
6. Timer reservation data (timer-communicatable type)
7. Bus code No. (only for the type with hold function)
8. Program/group information
9. Security switch for hold time
10. Registration data of caller ID and concerned
11. Setting of printer and concerned

3. 13. RS232C check

This is provided to check the interface path between FAX and personal computer, also checking the TX/RX paths together. Then, the result list is output.

4. How to make soft switch setting

To enter the soft switch mode, make the following key entries in sequence.


Press FUNCTION 9 ✳ 8 # 7 START
START
DATA No. 1 2 3 4 5 6 7 8
S F T SW-A1 = 0 0 0 0 0 0 0 0
S F T SW-A1 = 1 0 0 0 0 0 0 0
S F T SW-A1 = 1 0 0 0 0 0 0 0
S F T SW-A1 = 1 0 0 0 0 0 0 0
S F T SW-A1 = 1 0 0 0 0 0 0 0
S F T SW-A2 = 0 0 0 0 0 0 0 0
S F T SW-M2 = 0 0 0 0 0 0 0 0
Press FUNCTION key.
Press # key.
Press ✳ key.
Bit1 - 8 are set.
Press START key during setting.
Soft SW-A2 - SW-M2 are set.
• To finish the settings halfway between SW-A1 and SW-M2, press the STOP key. In this case, the setting being done to the SW No. on display will be nullified while settings done to the preceding SW Nos. remain in effect.
• When the COPY key is pressed, the contents of soft switches are printed.
The soft switch mode is terminated.

5. Soft switch description

- **Soft switch**

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting	Remarks
			1	0		
SW I A1	1	Protect from echo	No	Yes	0	
	2	Forced 4800 BPS reception	Yes	No	0	
	3	Footer print	Yes	No	0	
	4	Length limitation of copy/send/receive	No limit	Copy/send: 1m Receive: 1.5m	0	
	5	CSI transmission	No transmitted	Transmitted	0	
	6	DIS receive acknowledgement during G3 transmission	Twice	NSF: Once DIS: Twice	0	
	7	Non-modulated carrier for V29 transmission modem	Yes	No	0	
	8	EOL detect timer	25 s	13 s	0	
SW I A2		Modem speed	V. 33 / V. 17 / V. 29 / V. 27 ter			
			14400 12000 14400 12000 9600 7200 9600 7200 4800 2400			
	1		0 0 1 1 1 1 0 0 0 0		1	
	2		1 1 0 0 0 0 0 0 0 0		0	
	3		0 1 0 1 0 1 0 1 1 0		0	
	4		0 0 0 0 1 1 1 1 0 0		0	
	5	Sender's information transmit	No	Yes	0	
	6	Reserved			0	
	7	Communication error treatment in RTN sending mode (reception)	No communication error	Communication error	0	
	8	CNG transmission	No	Yes	0	
SW I A3		CED tone signal interval	1000ms / 750ms / 500ms / 75ms			
	1		No. 1: 1 1 0 0		0	
	2		No. 2: 1 0 1 0		0	
	3	MR coding	No	Yes	0	
	4	ECM mode	No	Yes	0	OPTION
	5	ECM MMR mode	No	Yes	0	
	6	Reserved			0	
	7	Reserved			0	
	8	Reserved			0	
SW I A4	1	Signal transmission level	Binary input No. = 16 8 4 2 1 1 2 3 4 5 0 1 0 1 0		0 1 0 1 0	
	2					
	3					
	4					
	5					
	6	Protocol monitor (error print)	Printed at com. err	Not printed	0	
	7	Protocol monitor	Yes	No	0	
	8	Line monitor	Yes	No	0	
SW I A5		Digital line equalization setting (Reception)	7.2km / 3.6km / 1.8km / 0km			
	1		No. 1: 1 1 0 0		0	
	2		No. 2: 1 0 1 0		1	
		Digital line equalization setting (Transmission)	7.2km / 3.6km / 1.8km / 0km			
	3		No. 3: 1 1 0 0		0	
	4		No. 4: 1 0 1 0		1	
	5	Reserved			0	
	6	Reserved			0	
	7	Error criterion	10 ~ 20 %	5 ~ 10 %	0	
	8	Anti junk fax check	Yes	No	0	OPTION

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting	Remarks
			1	0		
SW I A6	1	Auto gain control (MODEM)	Enable	Disable	1	
	2	End Buzzer	Yes	No	1	
	3	Disconnect the line when DIS is received in RX mode	No	Yes	1	
	4	Equalizer freeze control (MODEM)	On	Off	0	
	5	Equalizer freeze control 7200 BPS only	No	Yes	0	
	6	Reserved			0	
	7	Reserved			0	
	8	Reserved			0	
SW I B1	1	Recall interval	Binary input		0	OPTION
	2		No. = 8 4 2 1		1	
	3		1 2 3 4		0	
	4		0 1 0 1		1	
	5	Recall times	Binary input		0	OPTION
	6		No. = 8 4 2 1		0	
	7		5 6 7 8		1	
	8		0 0 1 0		0	
SW I B2	1	Dial pausing (sec/pause)	4 sec	2 sec	0	
	2	Reserved			0	
	3	Reserved			0	
	4	Busy tone detection (after auto dial)	No	Yes	U: 1 C: 0	
	5	Waiting time after dialing	90 sec	45 sec	0	
	6	Reserved			0	
	7	Reserved			0	
	8	Reserved			0	
SW I B3	1	Reserved			0	
	2	Reserved			0	
	3	Reserved			0	
	4	Reserved			0	
	5	Reserved			0	
	6	Reserved			0	
	7	Reserved			0	
	8	Reserved			0	
SW I B4	1	Auto Dial Mode Delay timer of before line connect	3 sec	0 sec	0	
	2	Auto Dial Mode Delay timer of after line connect	3 sec	1.7 sec	0	
	3	Dial mode	Tone	Pulse	1	OPTION
	4	Pulse → Tone change function by ✳ key	Enable	Disable	0	
	5	Reserved			0	
	6	Reserved			0	
	7	Reserved			0	
	8	Reserved			0	
SW I B5	1	DTMF signal transmission level (Low)	Binary input		0	
	2		No. = 16 8 4 2 1		1	
	3		1 2 3 4 5		0	
	4		0 1 0 1 0		1	
	5				0	
	6	Reserved			0	
	7	Reserved			0	
	8	Reserved			0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1				0		
SW I B6	1	DTMF signal transmission level (High)	Binary input					0	
	2		No. =	16	8	4	2 1	0	
	3			1	2	3	4 5	1	
	4			0	0	1	1 1	1	
	5							1	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I C1		Reading slice (Binary)		Factory setting	Light	Dark	Darker in dark mode		
	1		No. 1	0	1	0	1	0	
	2		No. 2	0	0	1	1	0	
		Reading slice (Half tone)		Factory setting	Light	Dark	Darker in dark mode		
	3		No. 3	0	1	0	1	0	
	4		No. 4	0	0	1	1	0	
	5	Line density selection	Fine				Standard	0	OPTION
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I D1	1	Number of rings for auto receive	Binary input					0	OPTION
	2		No. =	8	4	2	1	1	
	3			1	2	3	4	0	
	4			0	1	0	0	0	
	5	Automatic switching manual to auto receive mode	Reception after 5 rings				No reception	0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I D2		Distinctive ringing setting			No. 1	No. 2	No. 3		OPTION
			OFF		0	0	0		
			STANDARD		0	0	1		
	1		PATTERN 1		0	1	0	0	
	2		PATTERN 2		0	1	1	0	
	3		PATTERN 3		1	0	0	0	
	4	Reserved						0	
	5	Reserved						0	
		CI off detection timer (Distinctive ring setting off only)		1200ms	1000ms	700ms	350ms		
	6		No. 6	0	1	0	1	0	
	7		No. 7	0	0	1	1	1	
	8	Reserved						0	
SW I E1	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1			0			
SW I E2	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I F1		DTMF detection time		50ms	80ms	100ms	120ms		
	1		No. 1	0	0	1	1	0	
	2		No. 2	0	1	0	1	0	
	3	Protection of remote reception (5XX) detect	Yes			No		0	OPTION
	4	Remote reception with GE telephone	Compatible			Not compatible		1	
	5	Remote operation code figure by external TEL (0~9)	Binary input					0	OPTION
	6		No. = 8 4 2 1					1	
	7		5 6 7 8					0	
	8		0 1 0 1					1	
SW I F2	1	CNG detection in STAND-BY mode	Yes			No		1	OPTION
		Number of CNG detect (AM mode)		1pulse	2pulses	3pulses	4pulses		
	2		No. 2	0	0	1	1	0	
	3		No. 3	0	1	0	1	1	
		Number of CNG (STAND-BY mode)		1pulse	2pulses	3pulses	4pulses		
	4		No. 4	0	0	1	1	0	
	5		No. 5	0	1	0	1	1	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I G1	1	Quiet detect time	Binary input					0	OPTION
	2		No. = 8 4 2 1					1	
	3		1 2 3 4					0	
	4		0 1 0 0					0	
	5	Quiet detect start timing	Binary input					0	
	6		No. = 8 4 2 1					1	
	7		5 6 7 8					0	
	8		0 1 0 1					1	
SW I G2	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I G3	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	TAD (A.M.) connect	Yes			No		0	OPTION
		Section time of quiet detection		30s	40s	50s	60s		
	5		No. 5	0	0	1	1	0	
	6		No. 6	0	1	0	1	1	
	7	Reserved						0	
	8	Reserved						0	

SW NO.	DATA NO.	ITEM	Switch setting and function					Initial setting	Remarks
			1		0				
SW I H1	1	Busy tone detection ON/OFF time (Lower duration)	350ms		200ms			0	
	2	Busy tone detection ON/OFF time (Upper duration)	650ms		900ms			0	
	3	Reserved						0	
	4	Busy tone continuous sound detect time	5s		10s			1	
	5	Reserved						0	
	6	Busy tone detect continuation sound detect	No		Yes			0	
	7	Reserved						0	
	8	Busy tone detect intermittent sound detect	No		Yes			0	
SW I H2		Busy tone detection pulse number		2pulses	4pulses	6pulses	10pulses		
	1		No. 1	0	0	1	1	0	
	2		No. 2	0	1	0	1	1	
	3	Fax switching when A.M. full	Yes		No			0	OPTION
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I I1	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I I2	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I I3	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	
SW I I4	1	Reserved						0	
	2	Reserved						0	
	3	Reserved						0	
	4	Reserved						0	
	5	Reserved						0	
	6	Reserved						0	
	7	Reserved						0	
	8	Reserved						0	

SW NO.	DATA NO.	ITEM	Switch setting and function						Initial setting	Remarks
			1					0		
SW I I5	1	Reserved							0	
	2	Reserved							0	
	3	Reserved							0	
	4	Reserved							0	
	5	Reserved							0	
	6	Reserved							0	
	7	Reserved							0	
	8	Reserved							0	
SW I I6	1	Reserved							0	
	2	Reserved							0	
	3	Reserved							0	
	4	Reserved							0	
	5	Reserved							0	
	6	Reserved							0	
	7	Reserved							0	
	8	Reserved							0	
SW I I7	1	Reserved							0	
	2	Reserved							0	
	3	Reserved							0	
	4	Reserved							0	
	5	Reserved							0	
	6	Reserved							0	
	7	Reserved							0	
	8	Reserved							0	
SW I J1	1	Activity report print	Automatic printout					No printout when memory full	0	OPTION
	2	Total communication hours and pages print	No					Yes	0	
	3	Sender's phone number setting	Cannot change					Change allowed	0	
	4	Reserved							0	
	5	Reserved							0	
	6	Summer time setting	No					Yes	1	OPTION
		Ringer volume		Off	Low		Middle	High		OPTION
	7		No. 7	0	0		1	1	1	
	8		No. 8	0	1		0	1	0	
SW I J2		Speaker volume (3 stages)		Low	Low		Middle	High		OPTION
	1		No. 1	0	0		1	1	1	
	2		No. 2	0	1		0	1	0	
	3	Polling key	Yes					No	0	OPTION
		Handset receiver volume		Middle	Middle		Middle	High		OPTION
	4		No. 4	0	0		1	1	1	
	5		No. 5	0	1		0	1	0	
	6	Reserved							0	
	7	Reserved							0	
	8	Reserved							0	
SW I J3	1	Automatic cover sheet	Yes					No	0	OPTION
		Communication results printout (Transaction report)		E/T/M	Send only		Always	No print	Err only	OPTION
	2		No. 4	0	0		0	0	1	1
	3		No. 5	0	0		1	1	0	0
	4		No. 6	0	1		0	1	0	0
	5	Reserved							0	
	6	Reserved							0	
	7	Reserved							0	
	8	Reserved							0	

SW NO.	DATA NO.	ITEM	Switch setting and function				Initial setting	Remarks
			1		0			
SW I K1	1	Entering DIAG mode by pressing SPEED key	Yes		No		0	
	2	Reserved					0	
	3	Reserved					0	
	4	Reserved					0	
	5	Reserved					0	
	6	Reserved					0	
	7	Reserved					0	
	8	Reserved					0	
SW I L1	1	Reserved					0	
	2	Reserved					0	
	3	Reserved					0	
	4	Reserved					0	
	5	Cut off mode (COPY mode)	Yes		No		1	OPTION
	6	A4 paper enable	Enable		Disable		0	
	7	LEGAL & LETTER paper enable	Enable		Disable		1	
	8	2 IN 1 Mode	Yes		No		0	OPTION
SW I L2		Paper set size		LETTER	LEGAL	A4		OPTION
	1		No. 1	0	0	1	0	
	2		No. 2	0	1	0	0	
	3	Automatic reduce of receive	Auto		100 %		1	OPTION
	4	Paper type	High quality		Regular		0	OPTION
	5	Reserved					0	
	6	Reserved					0	
	7	Reserved					0	
	8	Reserved					0	
SW I M1		Serial port speed during communication in PC I/F mode		2400bps	19200bps			
	1		No. 1	0	1		1	
	2		No. 2	0	0		0	
	3		No. 3	0	0		0	
	4		No. 4	1	0		0	
		Serial port speed during no-communication in PC I/F mode		2400bps	19200bps			
	5		No. 5	0	1		1	
	6		No. 6	0	0		0	
	7		No. 7	0	0		0	
	8		No. 8	1	0		0	
SW I M2	1	Receive unit	FAX		PC		1	OPTION
	2	PC I/F mode	Yes		No		1	
	3	PC I/F command free	Yes		No		0	
	4	Reserved					0	
	5	Reserved					0	
	6	Reserved					0	
	7	Reserved					0	
	8	Reserved					0	

• Soft switch function description

SW-A1 No. 1 Protect from echo

Used to protect from echo in reception.

SW-A1 No. 2 Forced 4800BPS reception

When line conditions warrant that receptions take place at 4800 BPS repeatedly.

It may improve the success of receptions by setting at 4800BPS.

This improve the receiving document quality and reduces handshake time due to fallback during training.

SW-A1 No. 3 Footer print

When set to "1", the date of reception, the sender machine No., and the page No. are automatically recorded at the end of reception.

SW-A1 No. 4 Length limitation of copy/send/receive

Used to set the maximum page length.

To avoid possible paper jam, the page length is normally limited to 1 meter for copy or transmit, and 1.5 meters for receive.

It is possible to set it to "No limit" to transmit a long document, such as a computer print form, etc. (In this case, the receiver must also be set to no limit.)

SW-A1 No. 5 CSI transmission

(CSI TRANSMISSION) is a switch to set whether the machine sends or does not send the signal (CSI signal) informing its own telephone No. to the remote fax. machine when information is received. When "nonsending" is set, the telephone No. is not output on the remote transmitting machine if the remote transmitting machine has the function to display or print the telephone No. of receiving machine, using this CSI signal.

SW-A1 No. 6 DIS receive acknowledgment during G3 transmission

Used to make a choice of whether reception of DIS (NSF) is acknowledged after receiving two DISs (NSFs) or receiving one DIS (two NSFs).

It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

SW-A1 No. 7 Non-modulated carrier for V29 transmission modem

Though transmission of a non-modulated carrier is not required for transmission by the V29 modem according to the CCITT recommendation, it may be permitted to a send non-modulated carrier before the image signal to avoid and echo suppression problem. It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

SW-A1 No. 8 EOL (End Of Line) detect timer

Used to make a choice of whether to use the 25-second or 13-second timer for detection of EOL.

This is effective to override communication failures with some facsimile models that have longer EOL detection.

SW-A2 No. 1 ~ No. 4 Modem speed

Used to set determine the initial modem speed. The default is 14400BPS.

It may be necessary to program it to a slower speed when frequent line fallback is encountered, in order to save the time required for fallback procedure.

SW-A2 No. 5 Sender's information transmit

(SENDER'S INFORMATION TRANSMISSION) is a switch to set the function to print the content of HEADER PRINT described in the passcode list at the front end of receiver's original when original is sent to the remote machine.

If this switch is set to "NO", the HEADER PRINT is not output at the receiving machine.

SW-A2 No. 6 Reserved

Set to "0".

SW-A2 No. 7 Communication error treatment in RTN sending mode (Reception)

Used to determine communication error treatment when RTN is sent by occurrence of a received image error in G3 reception. When it is set to "1", communication error is judged as no error.

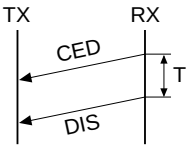
SW-A2 No. 8 CNG transmission

When set to "0" , this model allows CNG transmission by pressing the Start key in the key pad dialing mode. When set to "1", CNG transmission in the key pad dialing mode cannot be performed. In either case. CNG transmission can be performed in the auto dial mode.

SW-A3 No. 1, No. 2 CED tone signal interval

For international communication, the 2100Hz CED tone may act as an echo suppression switch, causing a communication problem.

Though SW-A3 No. 1 and No. 2 are normally set to 0, it should be changed this time between the CED tone signal to eliminate the communication problem caused by echo.



SW-A3 No. 3 MR Coding

MR Coding is enable.

SW-A3 No. 4 ECM mode

Used to determine ECM mode function. Refer to following table.

SW-A3 No. 4 ECM MODE		0	0	1	1
SW-A3 No. 5 ECM MMR MODE		0	1	0	1
Compression method	ECM MMR mode	Yes	No	No	No
	ECM MH mode	Yes	Yes	No	No
	MR Mode	Yes	Yes	Yes	Yes

(Depending on remote machine)

SW-A3 No. 5 ECM MMR mode

See SW-A3 No. 4.

SW-A3 No. 6 ~ No. 8 Reserved

Set to "0".

SW-A4 No. 1 ~ No. 5 Signal transmission level

Used to control the signal transmission level in the range of-0dB to-31dB.

SW-A4 No. 6 Protocol monitor (Error print)

If set to "1", protocol is printed at communication error.

SW-A4 No. 7 Protocol monitor

Normally set to "0". If set to "1", communication can be checked, in case of troubles, without using a G3 tester or other tools.
When communication FSK data transmission or reception is made, the data is taken into the buffer. When communication is finished, the data is analyzed and printed out. When data is received with the line monitor (SW-A4 No. 8) set to "1" the reception level is also printed out.

SW-A4 No. 8 Line monitor

Normally set to "0". If set to "1", the transmission speed and the reception level are displayed on the LCD. Used for line tests.

SW-A5 No. 1, No. 2 Digital line equalization setting (Reception)

Line equalization when reception is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 3, No. 4 Digital line equalization setting (Transmission)

Line equalization when transmission is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 5, No. 6 Reserved

Set to "0".

SW-A5 No. 7 Error criterion

Used to select error criterion for sending back RTN when receiving image data.

SW-A5 No. 8 Anti junk fax check

When use the Anti junk fax function, set to "1".

SW-A6 No. 1 Auto gain control (MODEM)

When this mode is enabled, if the reception signal level is under 31dBm. The modem itself controls the signal gain automatically.

SW-A6 No. 2 End buzzer

Setting this bit to 0 will disable the end buzzer (including the error buzzer/on-hook buzzer).

SW-A6 No. 3 Disconnect the line when DIS is received in RX mode

Bit1= 0: When DIS signal is received during RX mode, the line is disconnected immediately.

Bit1= 1: When DIS signal is received during RX mode, the line is disconnected on the next tone.

SW-A6 No. 4 Equalizer freeze control (MODEM)

This switch is used to perform reception operation by fixing the equalizer control of modem for the line which is always in an unfavorable state and picture cannot be received.

* Usually, the control is executed according to the state of line where the equalizer setting is changed always.

SW-A6 No. 5 Equalizer freeze control 7200BPS only

Setting which specifies SW-A3 No. 6 control only in the condition of 7200BPS modem speed.

SW-A6 No. 6 ~ No. 8 Reserved

Set to "0".

SW-B1 No. 1 ~ No. 4 Recall interval

Choice is made for a redial interval for speed and rapid dial calls. Used a binary number to program this. If set to 0 accidentally, 1 will be assumed.

SW-B1 No. 5 ~ No. 8 Recall times

Choice is made as to how many redials should be.

SW-B2 No. 1 Dialing pause (sec/pause)

Pauses can be inserted between telephone numbers of direct dial connection. Selection of 4 sec or 2 sec pause is available.

SW-B2 No. 2, No. 3 Reserved

Set to "0".

SW-B2 No. 4 Busy tone detection (after auto dial)

Used to set busy tone detection in auto dialing.

SW-B2 No. 5 Waiting time after dialing

This is time waiting for the opponent's signals after dialing.

For the Switzerland version, the time is fixed to 90 seconds regardless of this switch setting.

SW-B2 No. 6 ~ No. 8 Reserved

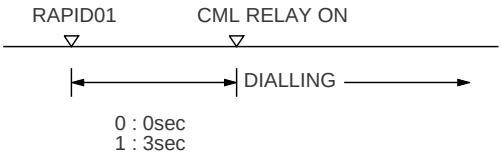
Set to "0".

SW-B3 No. 1 ~ No. 8 Reserved

Set to "0".

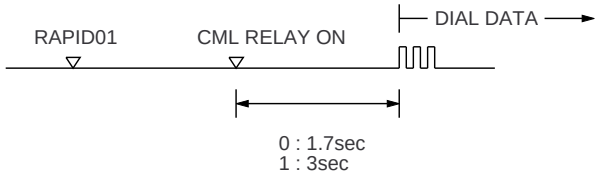
SW-B4 No. 1 Auto dial mode Delay timer of before line connect

Delay time between the dial key input and line connection under the auto dial mode.



SW-B4 No. 2 Auto dial mode Delay timer of after line connect

Delay time between the line connection and dial data output under the auto dial mode.



SW-B4 No. 3 Dial mode

When using the pulse dial, set to 1. When using the tone dial, set to 0.

SW-B4 No. 4 Pulse → Tone change function by ✳ key

When setting to 1, the mode is changed by pressing the ✳ key from the pulse dial mode to the tone dial mode.

SW-B4 No. 5 ~ No. 8 Reserved

Set to "0".

SW-B5 No. 1 ~ No. 5 DTMF signal transmission level (Low)

The transmission level of DTMF signal is adjusted. (lower frequency)

00000: 0dBm

↓

11111: -15.5dBm (-0.5dBm x 31)

SW-B5 No. 6 ~ No. 8 Reserved

Set to "0".

SW-B6 No. 1 ~ No. 5 DTMF signal transmission level (High)

The transmission level of DTMF signal is adjusted. (higher frequency)

00000: 0dBm

↓

11111: -15.5 dBm (-0.5dBm x 31)

SW-B6 No. 6 ~ No. 8 Reserved

Set to "0".

SW-C1 No. 1, No. 2 Reading slice (Binary)

Used to determine the set value of reading density in standard/fine mode. The standard setting is "00" (Factory setting is "00")

SW-C1 No. 3, No. 4 Reading slice (Half tone)

Used to determine the set value of reading density in half tone mode. The standard setting is "00" (Factory setting is "00")

SW-C1 No. 5 Line density selection

Used to set the transmission mode which is automatically selected when the Resolution key is not pressed. In the copy mode, however, the fine mode is automatically selected unless the Resolution key is manually set to another mode.

SW-C1 No. 6 ~ No. 8 Reserved

Set to "0".

SW-D1 No. 1 ~ No. 4 Number of rings for auto receive

When the machine is set in the auto receive mode, the number of rings before answering can be selected. It may be set from one to four rings using a binary number. Since the facsimile telephone could be used as an ordinary telephone if the handset is taken off the hook, it should be programmed to the user's choice. If the soft switch was set to 1, direct connection is made to the facsimile. If a facsimile calling beep was heard when the handset is taken off the hook, press the START key and put the handset on the hook to have the facsimile start receiving. If it was set to 0 accidentally, receive ring is set to 1.

NOTE: If the machine is set to answer after a large number of rings, it may not be able to receive faxes successfully. If you have difficulty receiving faxes, reduce the number of rings to a maximum of 6.

SW-D1 No. 5 Automatic switching manual to auto receive mode

This soft switch is used to select whether the machine should switch to the auto receive mode after 5 rings in the manual receive mode or remain in the same way as SW-D1 No. 1, No. 2, No. 3 and No. 4 "0"1"0"1"(5 rings).

SW-D1 No. 6 ~ No. 8 Reserved

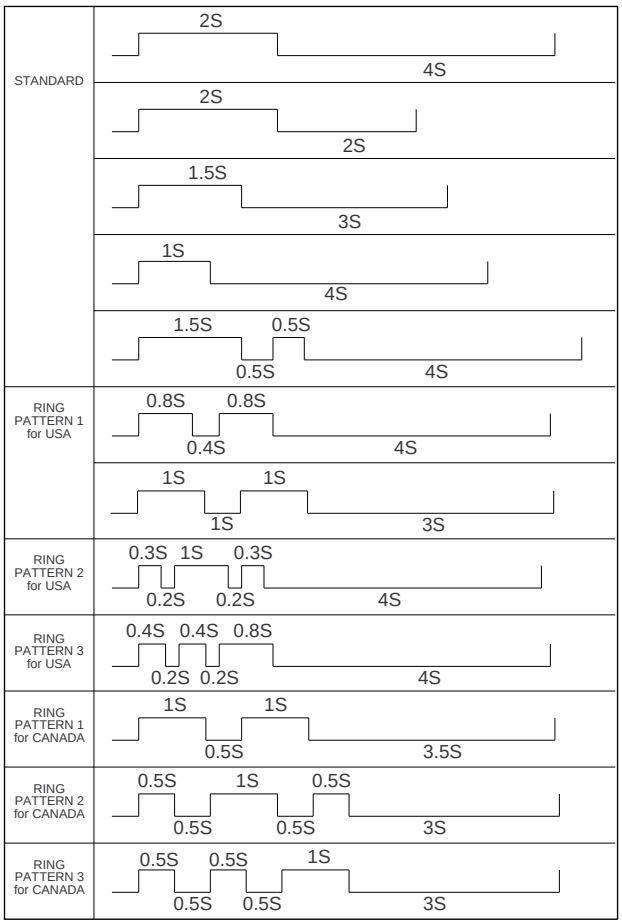
Set to "0".

SW-D2 No. 1 ~ No. 3 Distinctive ringing setting

When the ringing setting is turned off, all of the CI signal are received. When any of the standard, and ring patterns 1 through 3 is selected for the ringing setting, only the selected CI signal is received.

CI signal patterns

The CI signal patterns consists of the standard pattern, and ring patterns 1 through 7. The standard pattern is the conventional one.

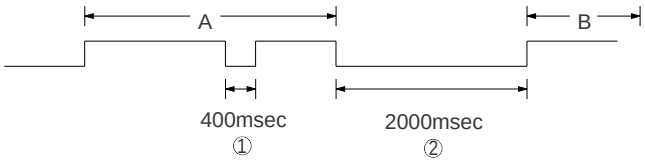


SW-D2 No. 4, No. 5 Reserved

Set to "0".

SW-D2 No. 6, No. 7 CI off detection timer (Distinctive ring setting off only)

Set the minimum time period of CI signal interruption which affords to be judged as a CI OFF section.



SW-D2 No. 8 Reserved

Set to "0".

SW-E1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-E2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-F1 No. 1, No. 2 DTMF detect time

Used to set detect time of DTMF (Dual Tone Multi Frequency) used in remote reception (5✻ ✻).

The longer the detect time is, the less the error detection is caused by noises.

SW-F1 No. 3 Protection of remote

Used to set the function of remote reception (5✻ ✻). When set to "1", the remote reception function is disabled.

SW-F1 No. 4 Remote reception with GE telephone

(Corresponding to TEL made by GE) P. B. X.

"1": Compatible with TEL mode by GE

"0": Not compatible

- When sending (5✻ ✻) for remote reception with a GE manufactured telephone remote reception may not take place because of special specifications in their DTMF.
  To overcome this, a soft SW is provided to change the modem setting to allow for remote reception.
- If this soft SW is set to "1", other telephone sets may be adversely affected.

SW-F1 No. 5 ~ No. 8 Remote operation code figure by external TEL (0 ~ 9)

Remote operation codes can be changes from 0 through 9. If set to greater than 9, it defaults to 9. The "5✻ ✻" is not changed.
Ex-7✻ ✻ (Default: 5✻ ✻)

SW-F2 No. 1 CNG detection in STAND-BY mode

When setting to "1", the CNG signal detection function during standby stops.

SW-F2 No. 2, No. 3 Number of CNG detect (AM mode)

Used for detection of CNG in 1 to 4 pulses.

SW-F2 No. 4, No. 5 Number of CNG (STAND-BY mode)

Used for detection of CNG in 1 to 4 pulses.

SW-F2 No. 6 ~ No. 8 Reserved

Set to "0".

SW-G1 No. 1 ~ No. 4 Quiet detect time

When an answering machine is connected, if a no sound state is detected for a certain period of time, the machine judges it as a transmission from a facsimile machine and automatically switches to the FAX mode.

SW-G1 No. 5 ~ No. 8 Quiet detect start timing

Inserts a pause before commencing quiet detection.

SW-G2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-G3 No. 1 ~ No. 3 Reserved

Set to "0".

SW-G3 No. 4 TAD (A.M.) connect

When connecting the answering machine to the extension telephone jack.

SW-G3 No. 5, No. 6 Section time of quiet detection

The switch which sets the time from the start of detection function to the end of the function.

SW-G3 No. 7, No. 8 Reserved

Set to "0".

SW-H1 No. 1 Busy tone detection ON/OFF time (Lower duration)

The initial value of detection is set according to electric condition.

The set value is changed according to the local switch board. (Erroneous detection of sound is reduced.)

Normally the upper limit is set to 900msec, and the lower limit to 200msec.

If erroneous detection is caused by sound, etc., adjust the detection range.

The lower limit can be set in the range of 350msec to 200msec.

SW-H1 No. 2 Busy tone detection ON/OFF time (Upper duration)

Similarly to SW-H1 No. 1, the set value can be varied.

The upper limit can be set in the range of 650msec to 900msec.

SW-H1 No. 1	SW-H1 No. 2	Detection range
0	0	200msec ~ 900msec
0	1	200msec ~ 650msec
1	0	350msec ~ 900msec
1	1	350msec ~ 650msec

SW-H1 No. 3 Reserved

Set to "0".

SW-H1 No. 4 Busy tone continuous sound detect time

Set detecting time busy tone for 5 seconds or as is PTT.

SW-H1 No. 5 Reserved

Set to "0".

SW-H1 No. 6 Busy tone detect continuation sound detect

Used to select detection of the continuous sound of certain frequency.

SW-H1 No. 7 Reserved

Set to "0".

SW-H1 No. 8 Busy tone detect intermittent sound detect

Used to select detection of the intermittent sound of certain frequency.

SW-H2 No. 1, No. 2 Busy tone detection pulse number

Used to set detection of Busy tone intermittent sounds.

SW-H2 No. 3 Fax switching when A.M. full

If the answering machine's memory (tape) is full and there is no response, the machine automatically switches to Fax reception.

SW-H2 No. 4 ~ No. 8 Reserved

Set to "0".

SW-I1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I3 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I4 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I5 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I6 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I7 No. 1 ~ No. 8 Reserved

Set to "0".

SW-J1 No. 1 Activity report print

This soft switch is used to select: whether or not to print out the activity report when the memory is full. An activity report can be printed when the following key entry command is made.

"FUNCTION", "2", "#", "START"

After producing the activity report, all the data in the memory will be cleared.

When the switch function is set to "0" (no), the data in the memory will be deleted from the oldest as it reaches the maximum memory capacity.

SW-J1 No. 2 Total communication hours and pages print

Used to make a choice of whether the total communication time and pages are recorded in the activity report.

SW-J1 No. 3 Sender's phone number setting

Used to make a choice of whether the registered sender's phone number can be changed or not. If the switch is set to "1", new registration of the sender's phone number is disabled to prevent accidental wrong input.

SW-J1 No. 4, No. 5 Reserved

Set to "0".

SW-J1 No. 6 Summer time setting

This is used to set YES/NO of automatic clock adjustment for European Summer time.

SW-J1 No. 7, No. 8 Ringer volume

Used to adjust ringing volume.

SW-J2 No. 1, No. 2 Speaker volume (3 stages)

Used to adjust sound volume from a speaker.

SW-J2 No. 3 Polling key

If this switch is set to 1, the last of Rapid key works as polling key.

SW-J2 No. 4, No. 5 Handset receiver volume

Used to adjust sound volume from a handset receiver volume.

SW-J2 No. 6 ~ No. 8 Reserved

Set to "0".

SW-J3 No. 1 Automatic cover sheet

The machine automatically generates a cover sheet and sends it as the last page of each transmission.

SW-J3 No. 2 ~ No. 4 Communication result printout (Transaction report)

Every communication, the result can be output. As usual, it is set to print the timer sending communication error alone. If No. 2: 0 No. 3: 1 No. 4: 0 are set, printing is always on (printed even if it is normally ended).

000: Error, timer and memory sending/receiving

001: Sending

010: Continuous printing

011: Not printed

100: Communication error

SW-J3 No. 5 ~ No. 8 Reserved

Set to "0".

SW-K1 No. 1 Entering DIAG mode by pressing SPEED key

A bit which is used in the production process only. When the SPEED key is pressed, the switch is changed from the stand-by state to the DIAG mode.

SW-K1 No. 2 ~ No. 8 Reserved

Set to "0".

SW-L1 No. 1 ~ No. 4 Reserved

Set to "0".

SW-L1 No. 5 Cut off mode (COPY mode)

Whether the excessive part is printed on the next recording paper or discarded is selected to copy a document which is longer than the recording paper.

SW-L1 No. 6 A4 Paper enable

The use of recording paper of A4 is enabled.

SW-L1 No. 7 LEGAL and LETTER paper enable

The use of recording paper of LEGAL and LETTER is enabled.

SW-L1 No. 8 2 IN 1 mode

A function to print transmitted data of two pages on one sheet.

SW-L2 No. 1, No. 2 Paper set size

At present size of the recording paper.

SW-L2 No. 3 Automatic reduce of receive

If set to 1, it is reduced automatically when receiving.

SW-L2 No. 4 Paper type

The type of the recording paper is set.

SW-L2 No. 5 ~ No. 8 Reserved

Set to "0".

SW-M1 No. 1 ~ No. 4 Serial port speed during communication in PC I/F mode

Used to set RS232C baud rate between PC and FAX after outputting the result code for communication start command (AT+FCLASS=1 or AT+FCLASS=2) in PC I/F mode.

SW-M1 No. 5 ~ No. 8 Serial port speed during no-communication in PC I/F mode

Used to set RS232C baud rate between PC and FAX after outputting the result code for communication start command or communication end command (AT+FCLASS=0 or ATH0) in PC I/F mode.

SW-M2 No. 1 Receive unit

This switch is used to select FAX or PC for Auto reception when PC I/F mode is ON.

SW-M2 No. 2 PC I/F mode

When this switch set to "1", PC I/F function is ON.

SW-M2 No. 3 PC I/F command free

If this switch set to "1", "OK" is responsed for the invalid AT command.
But these command don't work.

SW-M2 No. 4 ~ No. 8 Reserved

Set to "0".

[3] Troubleshooting

Refer to the following actions to troubleshoot any of problems mentioned in 1-4.

[1] A communication error occurs.

[2] Image distortion produced.

[3] Unable to do overseas communication.

[4] Communication speed slow due to FALLBACK.

- Increase the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5. May be used in case [1] [2] [3].
- Decrease the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5. May be used in case [3].
- Apply line equalization SOFT SWITCH A5-1, 2. May be used in case [1] [2] [3] [4].
- Slow down the transmission speed SOFT SWITCH A2-1, 2, 3, 4. May be used in case [2] [3].
- Replace the TEL/LIU PWB. May be used in all cases.
- Replace the control PWB. May be used in all cases.

* If transmission problems still exist on the machine, use the following format and check the related matters.

TO: ATT: Ref.No. :

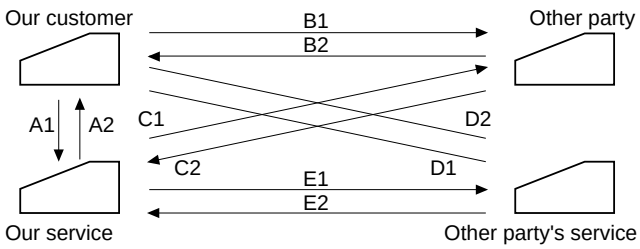
CC: ATT: Date :

FM: Dept :

Sign :

***** Facsimile communication problem *****			Ref.No.:
From: Mr.	Fax Tel No.:		Date:
Our customer	Name		Tel No.
	Address		Fax No.
	Contact person		Model name
Other party	Name		Tel No.
	Address		Fax No.
	Contact person		Model name
Problem mode	Line: Domestic / international	Model: G3	Phase: A, B, C, D.
	Reception / Transmission	Automatic reception / Manual reception	
		Automatic dialing / Manual dialing / Others	
Frequency:		%	ROM version:

Confirmation item



Please mark problem with an X.
No problem is: 0.

A1	A2	B1	B2	C1	C2	D1	D2	E1	E2

Transmission level setting is ( ) dB at our customer

Transmission level ( ) dBm
Reception level ( ) dBm
By level meter at B1 and B2

Comment

Countermeasure

**** Please attach the G3 data and activity report on problem. ****

* Please complete this report before calling the "TAC" hotline if problem still occurs.

[4] Error code table

1. Communication error code table

G3 Transmission

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSF, DIS	Cannot recognize DCS signal by echo etc. Cannot recognize NSS signal (FIF code etc)
2	CFR	Disconnects line during reception (carrier missing etc)
3	FTT	Disconnects line by fall back
4	MCF	Disconnects line during reception of multi page Cannot recognize NSS, DCS signal in the case of mode change
5	PIP or PIN	The line is hung up without replying to telephone request from the receiving party.
6	RTN or RTP	Cannot recognize NSS, DCS signal after transmit RTN or RTP signal.
7	No signal or DCN	No response in receiver side or DCN signal received* (transmitter side)
8	–	Owing to error in some page the error could not be corrected although the specified number of error retransmission was at tempted.
11	–	Error occurred after or while reception by the remote (receiving) machine was revealed to be impossible.
12	–	Error occurred just after fallback.
13	–	Error occurred after a response to retransmission end command was received.

G3 Reception

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSS, DCS	Cannot recognize CFR or FTT signal Disconnects line during transmission (line error)
2	NSC, DTC	Cannot recognize NSS signal (FIF code etc)
3	EOP	Cannot recognize MCF, PIP, PIN, RTN, RTP signal
4	EOM	Cannot recognize MCF, PIP, PIN, RTN, RTP signal in the case of mode change
5	MPS	The line is hung up without replying to communication request.
6	PR1-Q	Cannot recognize PIP, PIN signal in the case of TALK request
7	No signal or DCN	No response in transmitter (cannot recognize DIS signal) or DCN signal received* (receiver side)
8	–	Error occurred upon completion of reception of all pages.
9	–	Error occurred when mode was changed or Transmission/Reception switching was performed.
10	–	Error occurred during partial page or physical page reception.
11	–	Error occurred after or during inquiry from the remote (transmitting) machine as to whether reception is possible or not.
12	–	Error occurred during or just after fallback.
13	–	Error occurred after the retransmission end command was received.

CHAPTER 3. MECHANISM BLOCKS

[1] General description

1. Document feed block and diagram

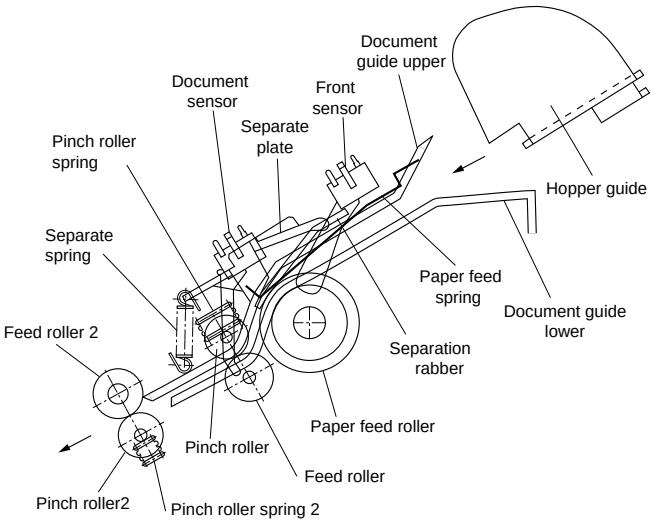


Fig. 1

2. Document feed operation

1) The original, which is set in the document hopper, feeds automatically when the front sensor is activated. This in turn activates the pulse motor which drives the document supply roller. The document stops when the lead edge is detected by the document sensor.
2) The lead edge of the original is fed a specified number of pulses after the lead edge of the document is detected for the reading process to begin.
3) The trailing edge of the original is fed a specific number of pulses after the trailing edge of the document deactivates the document sensor. The read process then stops and the original is discharged.
4) When the front sensor is in the OFF state (any document is not set up in the hopper guide), the drive will be stopped when the document is discharged.

3. Hopper mechanism

3-1. General view

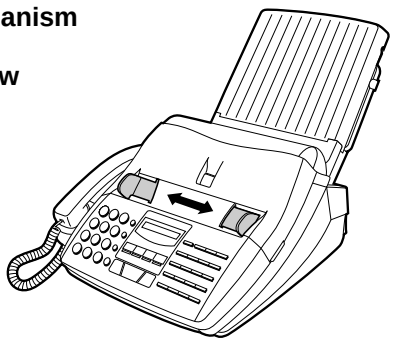


Fig. 2

The hopper section contains document guides that are used to adjust the hopper to the width of the original document. This ensures that the original feeds straight into the fax machine for scanning.
Document width: 148 mm to 216 mm (A5 longitudinal size to Letter longitudinal size)

NOTE: Adjust the document guide after setting up the document.

3-2. Automatic document feed

1) Use of the paper feed roller and separation rubber plate ensures error-free transport and separation of documents. The plate spring presses the document to the paper feed roller to assure smooth feeding of the document.
2) Document separation method: Separation rubber plate

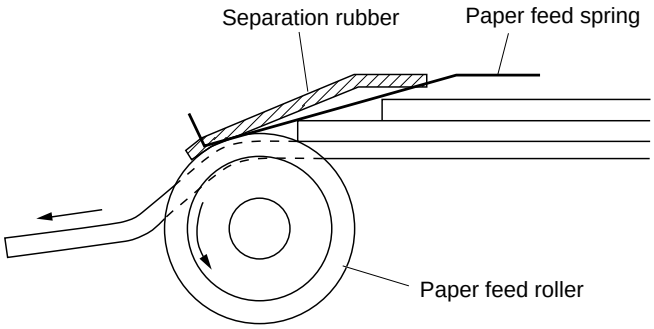


Fig. 3

3-3. Documents applicable for automatic feed

	4x6 series (788mm x 1091mm x 1000mm sheets)		Square meter series	
	Minimum	Maximum	Minimum	Maximum
Feeder capacity	20 sheets, max.			
Paper weight	45kg	64.3kg	52g/m^2	74.3g/m^2
Paper thickness (ref.)	0.06mm	0.09mm	0.06mm	0.09mm
Paper size	B6 (128mm x 182mm) ~ A4 (210mm x 297mm), Letter (216mm x 279mm)			

NOTE: Double-side coated documents and documents on facsimile recording paper should be inserted manually. The document feed quantity may be changed according to the document thickness.

Documents corresponding to a paper weight heavier than 64.3kg (74.3g/m^2) and lighter than 135kg (157g/m^2) are acceptable for manual feed.

Documents heavier than 135kg in terms of the paper weight must be duplicated on a copier to make it operative in the facsimile.

3-4. Loading the documents

1) Make sure that the documents are of suitable size and thickness, and free from creases, folds, curls, wet glue, wet ink, clips, staples and pins.
2) Place documents face down in the hopper.
   i) Adjust the document guides to the document size.
   ii) Align the top edge of documents and gently place them into the hopper. The first page under the stack will be taken up by the feed roller to get ready for transmission.

NOTES: 1) Curled edge of documents, if any, must be straighten out.
2) Do not load the documents of different sizes and/or thicknesses together.

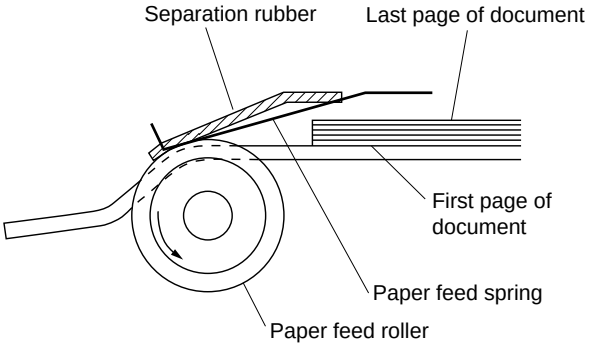


Fig. 4

3-5. Documents requiring use of document carrier

1) Documents smaller than B6 (128mm x 182mm).
2) Documents thinner than the thickness of 0.06mm.
3) Documents containing creases, folds, or curls, especially those whose surface is curled (maximum allowable curl is 5mm).
4) Documents containing tears.
5) Carbon-backed documents. (Insert a white sheet of paper between the carbon back and the document carrier to avoid transfer of carbon to the carrier.)
6) Documents containing an easily separable writing material (e.g., those written with a lead pencil).
7) Transparent documents.
8) Folded or glued documents.

Document in document carrier should be inserted manually into the feeder.

4. Document release

4-1. General

To correct a jammed document or to clean the document running surface, pull the operation panel lock lever under the front center of the operation panel. To open the upper document guide, the operation panel must be opened first.

5. Optical system

(1) General view

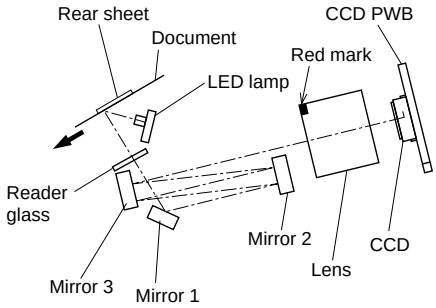


Fig. 5

(2) Composition

The optical system is composed of the document feed mechanism, the LED lamp, the reflecting mirrors, the focusing lens, the CCD sensor, and the read process circuit.

5-1. LED Lamp/Lens

The LED lamp is used to project light to the document.

NOTE: Take care for the position of the red mark on the lens. (Top of the light-projected side)

5-2. CCD

The CCD (charge coupled device) image sensor consists of a photodiode array which converts the intensity of light reflected from the document surface into series of analog voltages which are then stored in an analog shift register. The series of analog voltages are then converted into a digital equivalent by a black/white binary logic circuit.

(Example) Scan signal output waveform

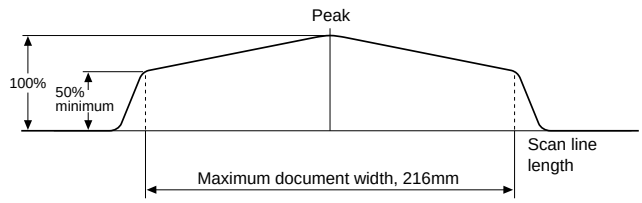


Fig. 6

1) The minimum output from the CCD at the maximum scan width of document (216mm) must be more than 50% of the peak value.
2) The peak output must be about 0.2 ~ 0.6 under room temperature to avoid CCD saturation.

6. Recording block

(1) General view

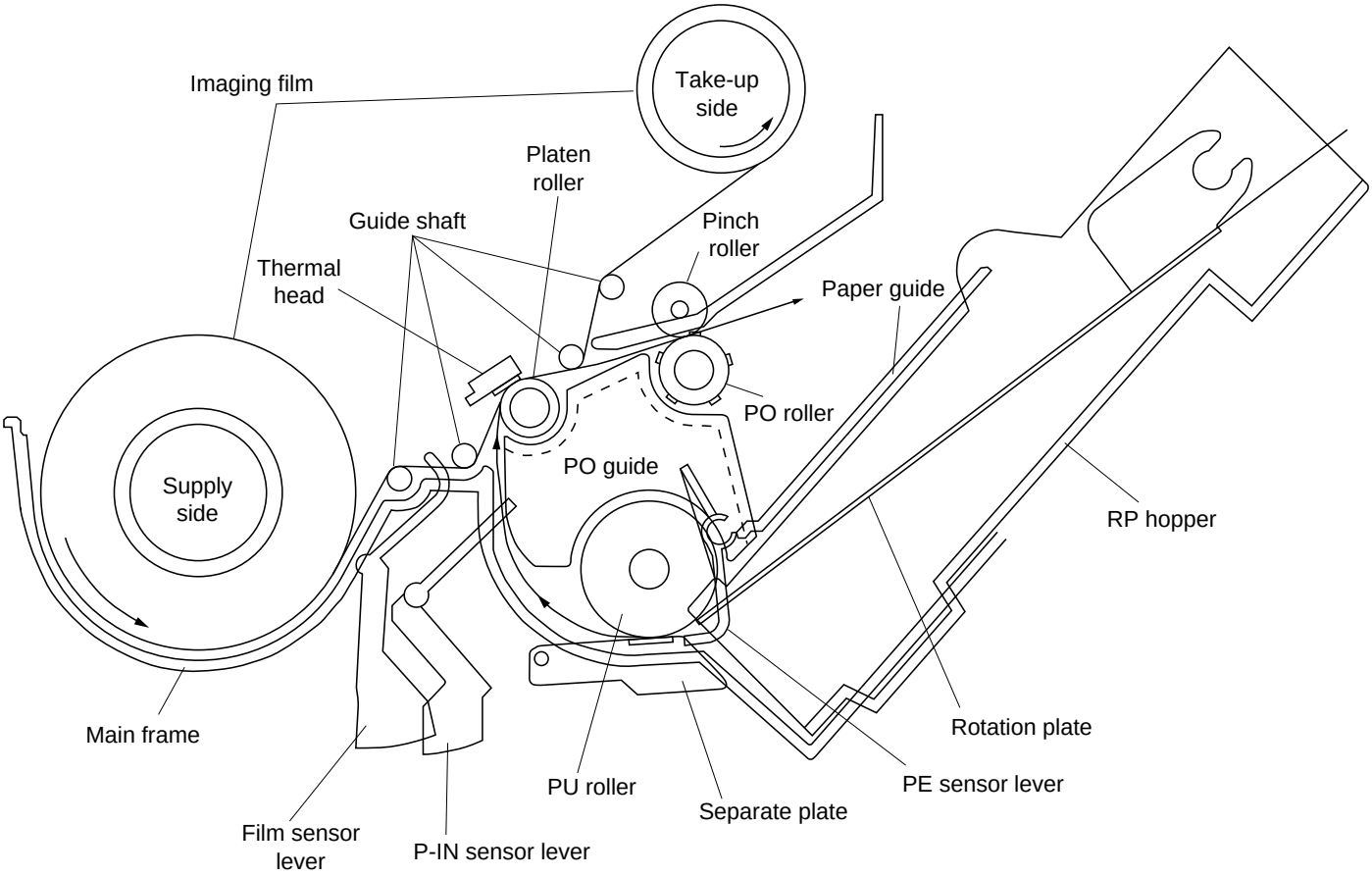


Fig. 7

6-1. Driving

In the drive mechanism, the rotating force of the pulse motor for both transmission and reception is transmitted to the paper supply roller, the recording paper feed roller and imaging film drive gear through the pulse motor axle gear, reduction gear and planetary gear.

6-2. Recording

This equipment employs the thermal transcription system which used the thermal head imaging film.

1) Thermal head

The thermal head is composed of 2,016 heating elements in traverse line, and the resolution power is 8 dots/mm. The maximum speed is 10 ms/line.

2) Structure of recording mechanism

Recording is achieved by applying a suitable pressure to the thermal head through the imaging film of the recording paper feed roller and the recording paper.
The main scanning is electronically done, and the sub-scanning is mechanically done (by sending the recording paper with the recording paper feed roller).

3) Recording paper transfer sequence

a) The recording paper stored in the RP hopper is fed with the PU roller, and the recording paper is stopped when the P-IN sensor is turned on by sensing its lead edge.

b) Hereafter, the imaging film and recording paper are transferred with the recording paper feed roller, and thermal transcription is done on the recording paper.

c) After thermal transcription, the imaging film is taken up by the roller on the take-up side, and the recording paper is discharged by the PO roller.

As basic, the density unevenness mainly results from the longitudinal misalignment of the thermal head to the heater line. Otherwise, the head is in uneven contact with the recording paper feed roller, or the imaging film is wrinkled.

The following items are described as the simplified checking method.

① Are the power and signal cables of the thermal head suitably treated?
② Does the same symptom appear even if the thermal head pressure spring is replaced?
③ Is the feed roller of the recording paper concentric? (Density is uneven at intervals.)
④ Does the same symptom appear even if the thermal head is replaced?
⑤ Is the imaging film stained or wrinkled?

[2] Disassembly and assembly procedures

- This chapter mainly describes the disassembly procedures. For the assembly procedures, reverse the disassembly procedures.
- Easy and simple disassembly/assembly procedures of some parts and units are omitted. For disassembly and assembly of such parts and units, refer to the Parts List.
- The numbers in the illustration, the parts list and the flowchart in a same section are common to each other.
- To assure reliability of the product, the disassembly and the assembly procedures should be performed carefully and deliberately.

1	**Operation panel unit, document guide lower and rear cover**

Parts list (Fig. 1)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Mechanism unit	1	9	Hook switch lever	1
2	Operation panel unit	1	10	Document guide lower unit	1
3	Screw (3×12)	2	11	Transfer gear	1
4	Side cover	1	12	Transfer bearing	3
5	Screw (3×12)	1	13	Transfer roller	1
6	Screw (3×10)	2	14	Feed gear ass'y	1
7	Rear cabinet	1	15	Feed roller	1
8	Screw (3×10)	4	16	Document guide lower	1

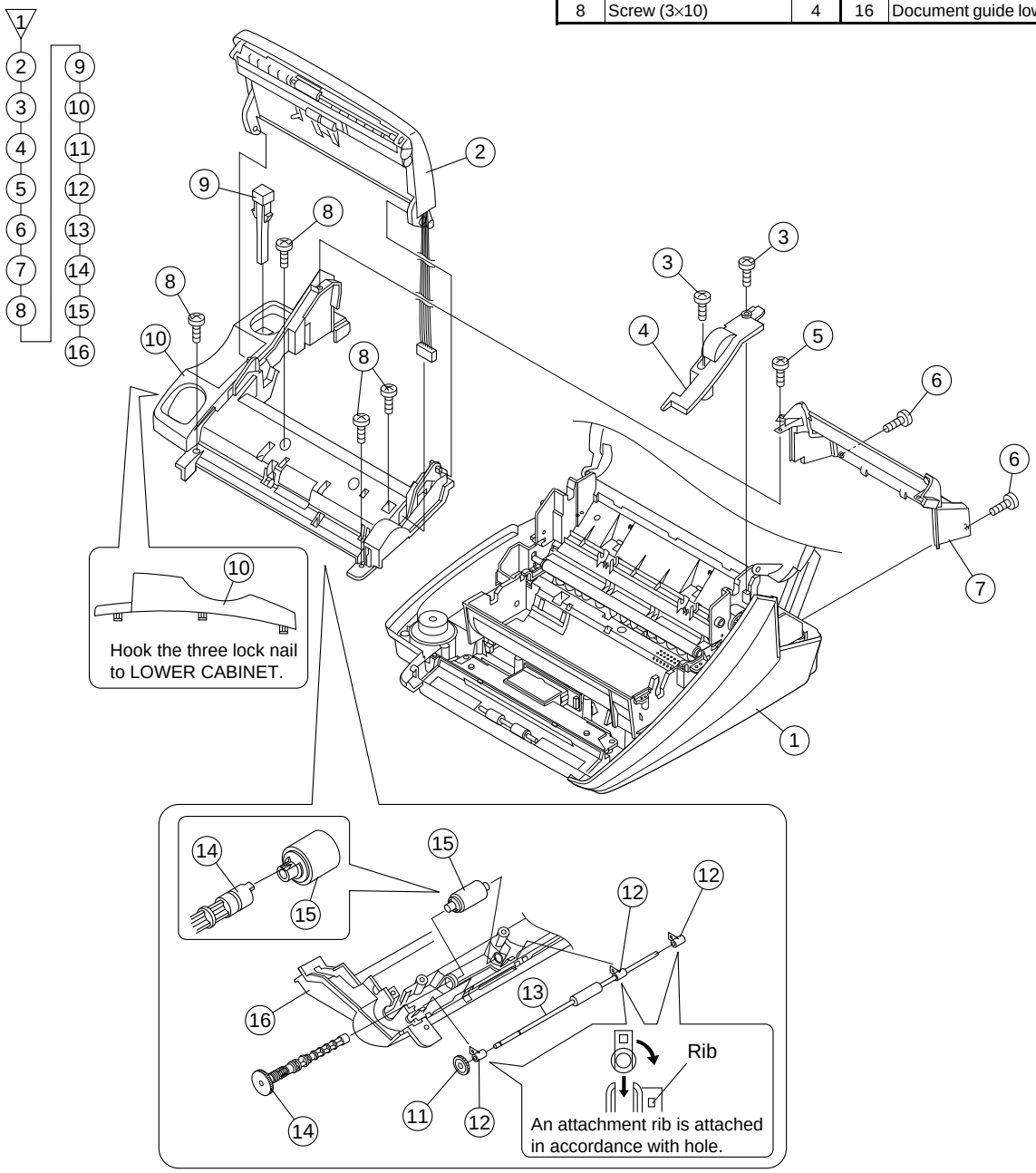


Fig. 1

2 Document guide upper

Parts list (Fig. 2)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Operation panel unit	1	10	Transfer bearing	2
2	Screw (3×10)	2	11	Transfer roller	1
3	Document guide upper unit	1	12	Separate spring	1
			13	Separate plate	1
4	Panel lock lever spring	1	14	Paper feed spring	1
5	Panel lock lever	1	15	Separation rubber	1
6	Idler gear (28Z)	1	16	Pinch roller spring	2
7	Idler gear (20Z)	1	17	Pinch roller shaft	1
8	Transfer gear	1	18	Pinch roller	2
9	Rear sheet	1	19	Document guide upper	1

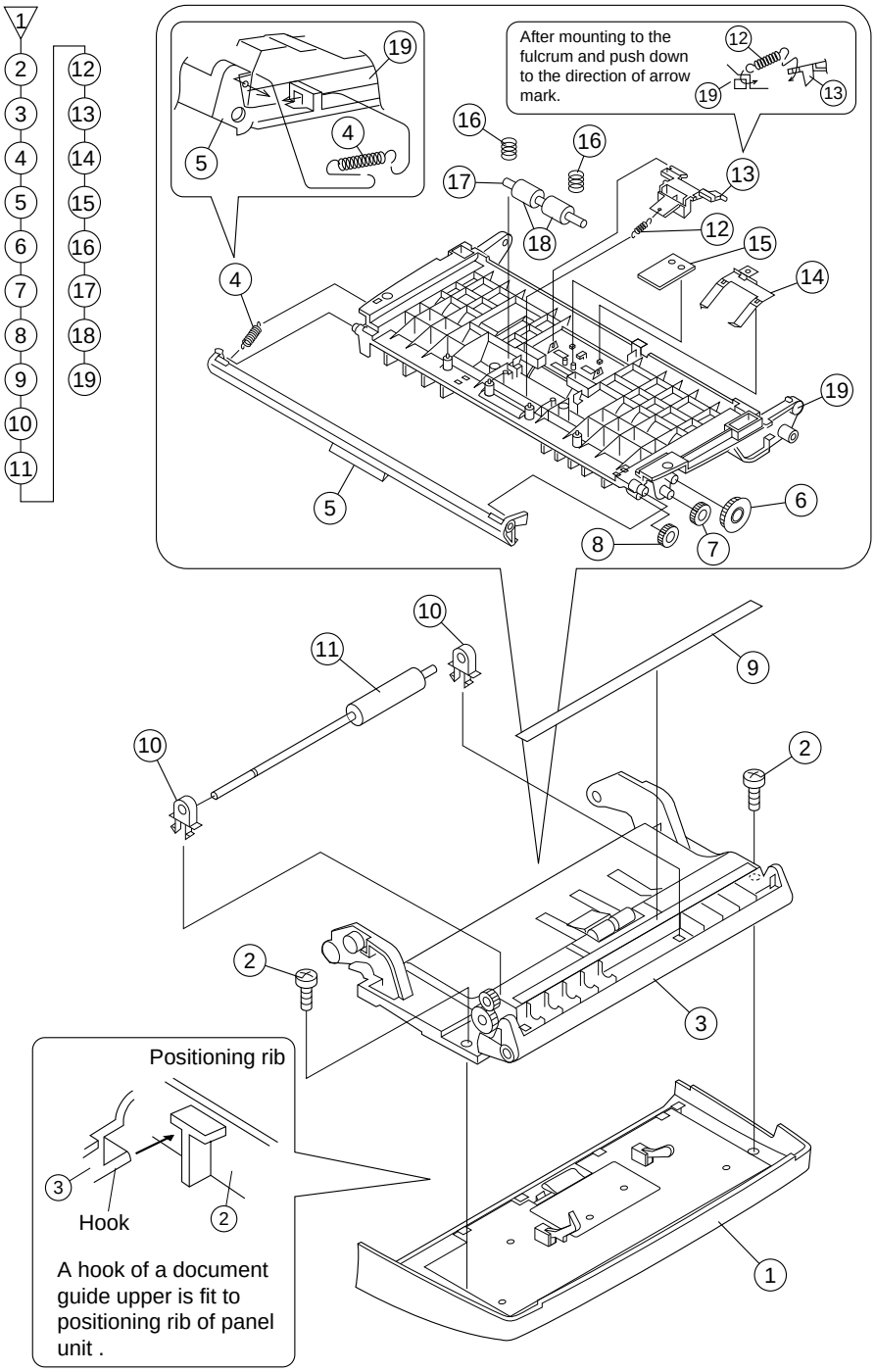

After mounting to the fulcrum and push down to the direction of arrow mark.
Positioning rib
Hook
A hook of a document guide upper is fit to positioning rib of panel unit .

Fig. 2

3 Operation panel

Parts list (Fig. 3)

No.	Part name	Q'ty
1	Operation panel unit	1
2	Screw (2.6×6)	5
3	Insulation sheet	1
4	Operation panel PWB unit	1
5	12 key	1
6	Start key	1
7	Stop key	1
8	Mode key	1
9	Direct key	1
10	Panel cable	1
11	Operation panel	1

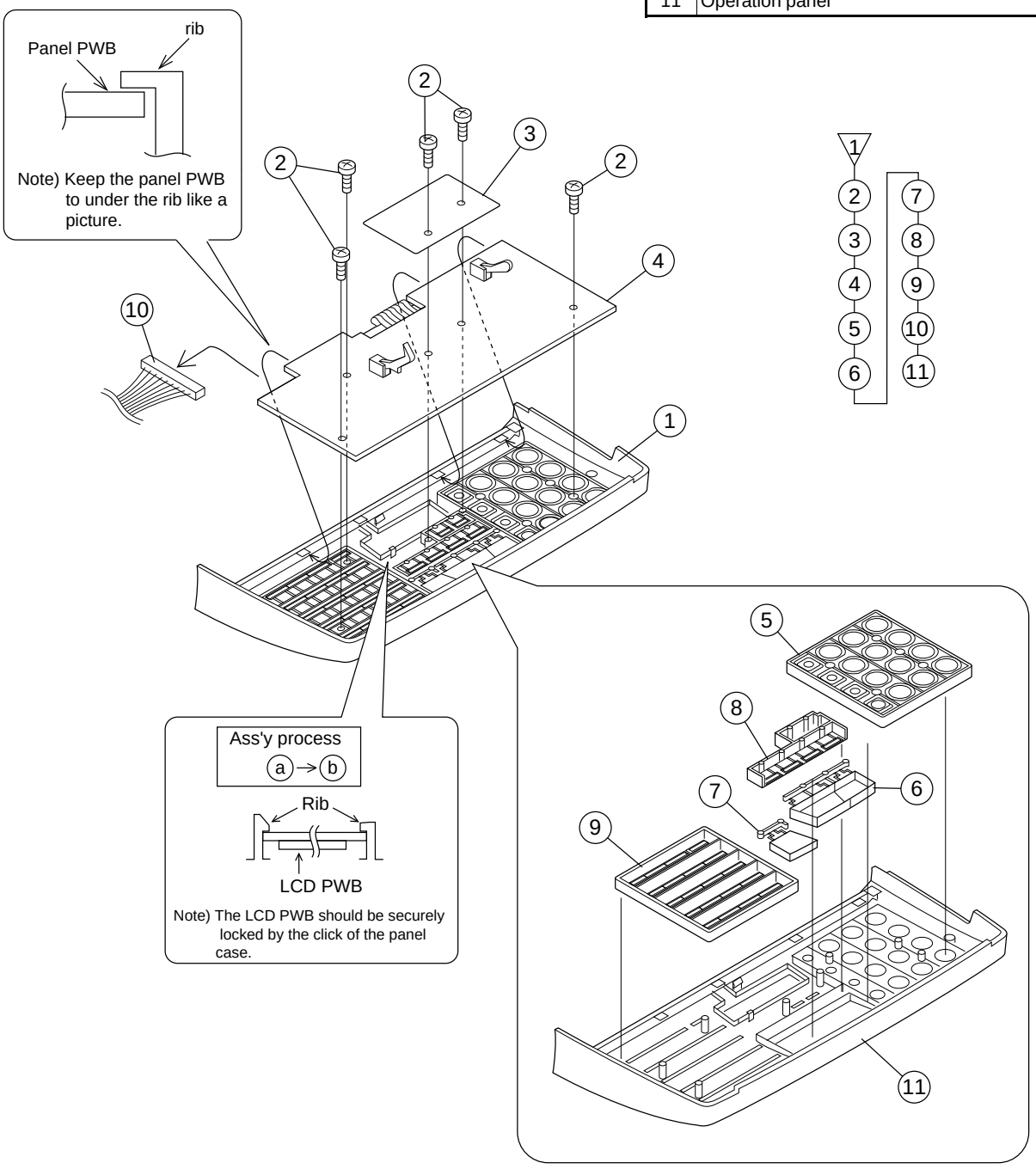

rib
Panel PWB
Note) Keep the panel PWB to under the rib like a picture.
Ass'y process
a → b
Rib
LCD PWB
Note) The LCD PWB should be securely locked by the click of the panel case.

Fig. 3

4 Top cover and head frame unit

Parts list (Fig. 4)

No.	Part name	Q'ty
1	Mechanism unit	1
2	Top cover unit	1
3	Screw (3×10)	5
4	Head frame unit	1
5	Hopper guide, right	1
6	Hopper guide, left	1
7	Screw	1
8	Pinion gear	1
9	Hopper spring	1
10	Top cover	1

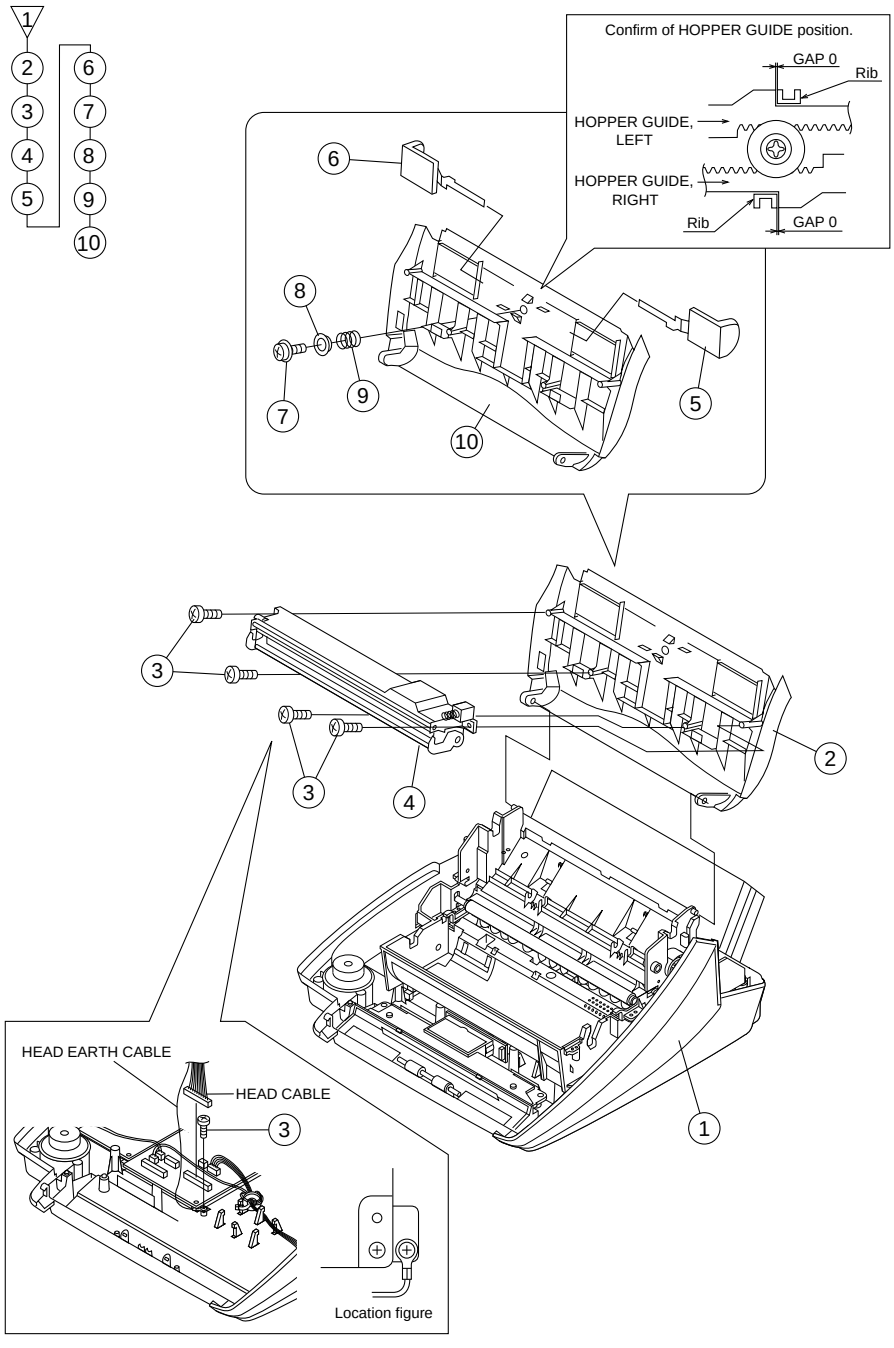


Fig. 4

5 Head frame and thermal head

Parts list (Fig. 5)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Release knob	1	11	Head spring B	2
2	Lock spring	1	12	Head spring A	1
3	Lock lever	1	13	Head frame	1
4	Screw (3×10)	1	14	Head cable	1
5	Pop up spring	1	15	Screw (3×6)	1
6	Cut washer	2	16	Head earth cable	1
7	Film guide shaft	2	17	Head guide, right	1
8	Head guide sheet	1	18	Screw (3×6)	1
9	Thermal head unit	1	19	Head guide, left	1
10	Head spring C	2	20	Thermal head	1

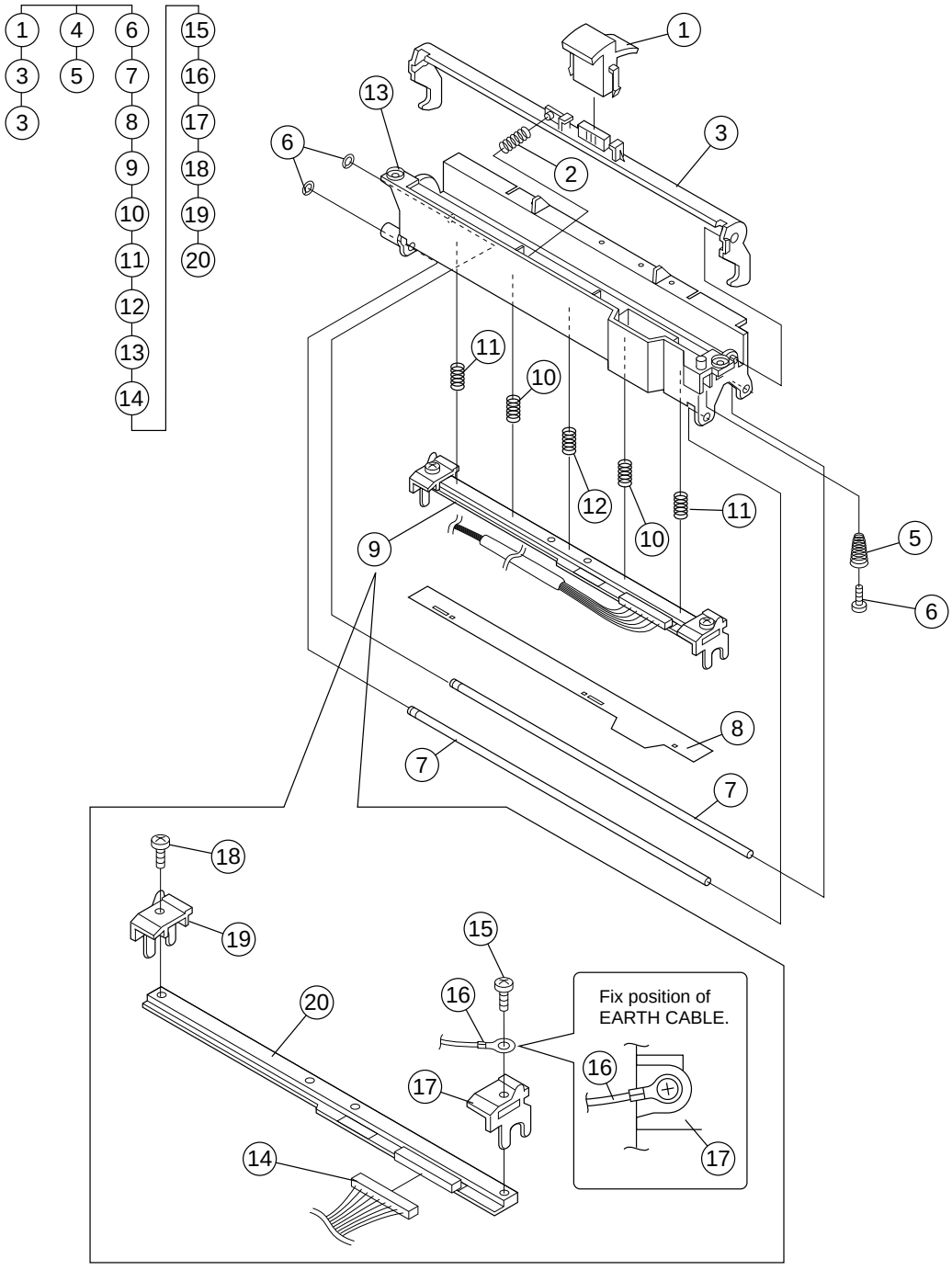


Fig. 5

6 Paper out guide

Parts list (Fig. 6)

No.	Part name	Q'ty
1	Mechanism unit	1
2	Screw (3×10)	2
3	Paper out guide unit	1
4	Idler gear A	1
5	Take-up gear	1
6	Slip gear ass'y	1
7	Cut washer	1
8	Film shaft C	1
9	PO pinch roller spring	2
10	PO pinch roller	2
11	Clamp	1
12	Paper out guide	1

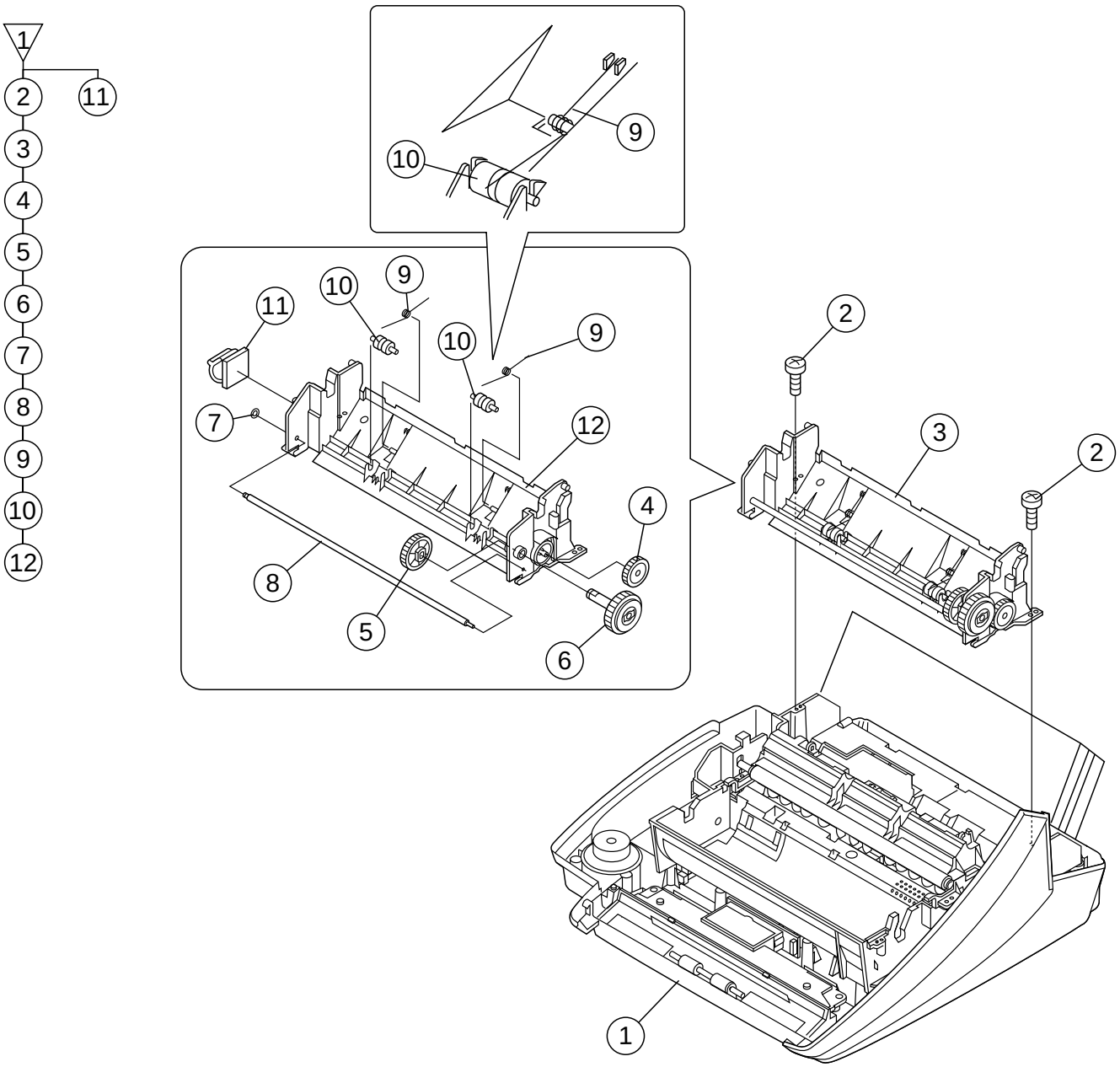


Fig. 6

7 Recording paper hopper, speaker and pinch roller

Parts list (Fig. 7)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Mechanism unit	1	10	Paper up plate	1
2	Screw (3×12)	2	11	RP pad	1
3	RP hopper unit	1	12	Cassette spring	2
4	Paper guide	1	13	RP hopper	1
5	Screw	2	14	Screw	3
6	RP release spring	1	15	Seaker	1
7	RP release gear, right	1	16	Pinch roller spring	2
8	RP release gear, left	1	17	Pinch roller	2
9	RP release plate	1	18	Pinch roller shaft	1

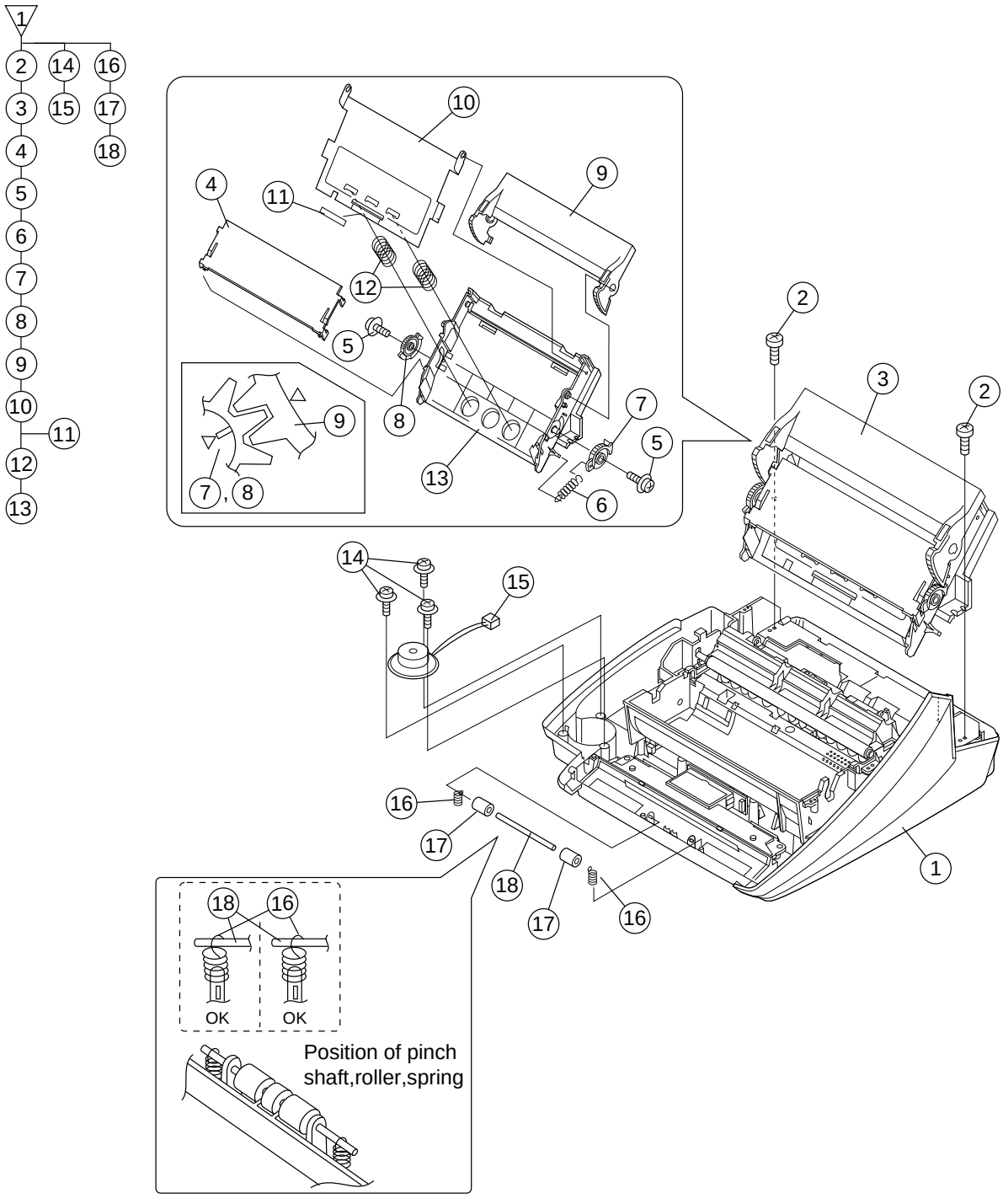


Fig. 7

8	**Main frame, ROM cover, memory cover, drive unit and optical unit**

Parts list (Fig. 8)

No.	Part name	Q'ty
1	Mechanism unit	1
2	Screw (3×10)	1
3	ROM cover	1
4	Memory cover	1
5	Screw (3×10)	1
6	Reduction gear B	1
7	Drive unit	1
8	Screw (3×10)	3
9	Main frame unit	1
10	Optical unit	1
11	Clamp	1

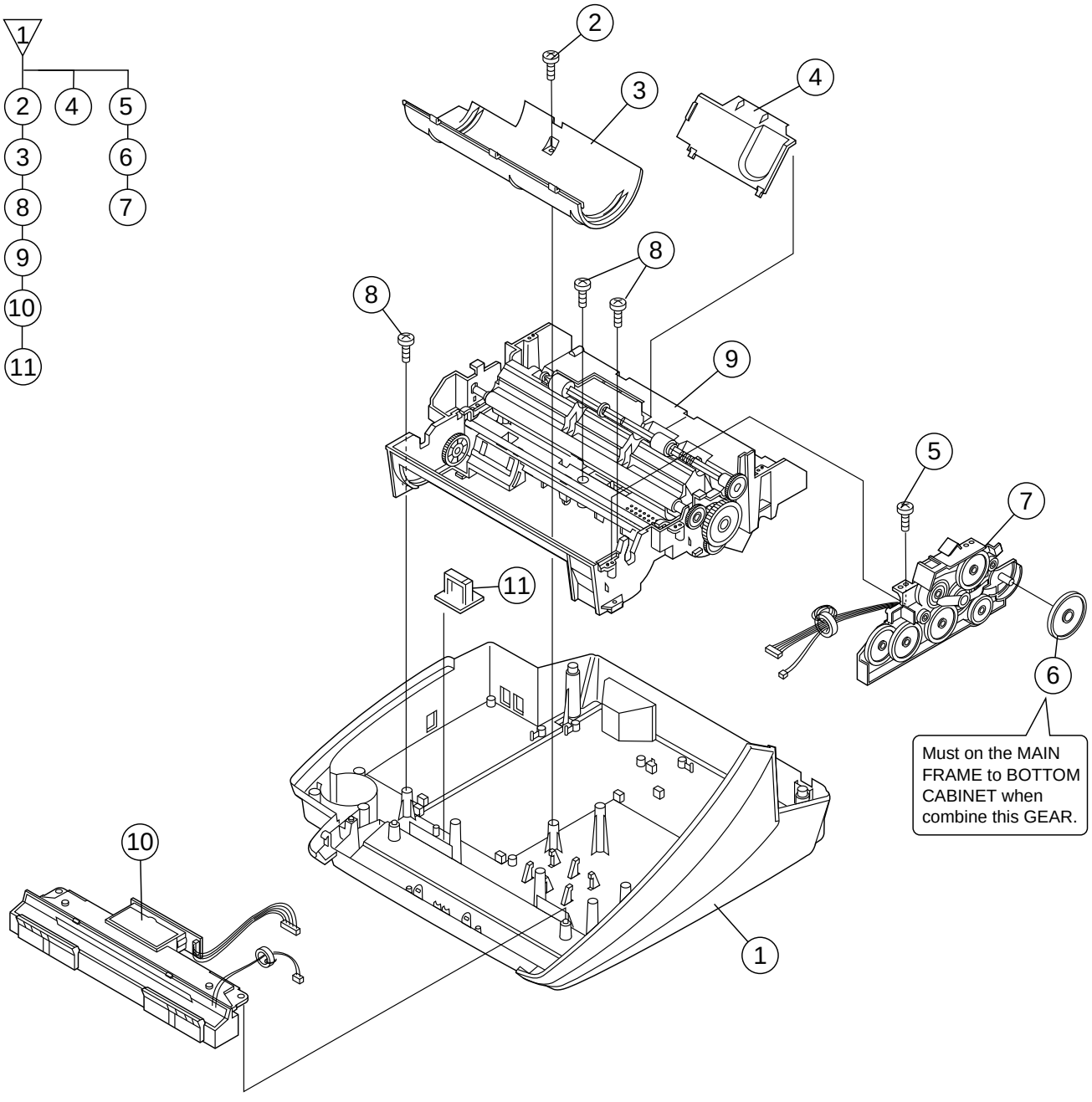


Fig. 8

9 Main frame, U turn guide and transfer roller etc.

Parts list (Fig. 9)

No.	Part name	Q'ty	No.	Part name	Q'ty	No.	Part name	Q'ty
1	Reduction gear A	1	13	PE sensor lever B	1	25	Back tension felt	1
2	PU gear	1	14	PU roller shaft	1	26	Slip spring	1
3	Platen bearing	1	15	PU roller ass'y	1	27	Hold down plate B	1
4	Platen gear	1	16	PO roller ass'y	1	28	Back tension stopper	1
5	Platen bearing	1	17	U turn guide	1	29	Separate plate spring	1
6	Platen roller	1	18	Sensor lever spring	1	30	Separate sheet	1
7	PO gear	1	19	P-IN sensor lever	1	31	Separate plate sheet	1
8	Screw (3×10)	4	20	Sensor lever spring	1	32	Separate plate	1
9	Film guide shaft B	1	21	Film sensor lever	1	33	Guide sheet, left	1
10	PE sensor lever spring	1	22	Pop up spring	1	34	Guide sheet, right	1
11	PE sensor lever A	1	23	Cover switch lever	1	35	Main frame	1
12	PE sensor spring	1	24	Back tension gear	1			

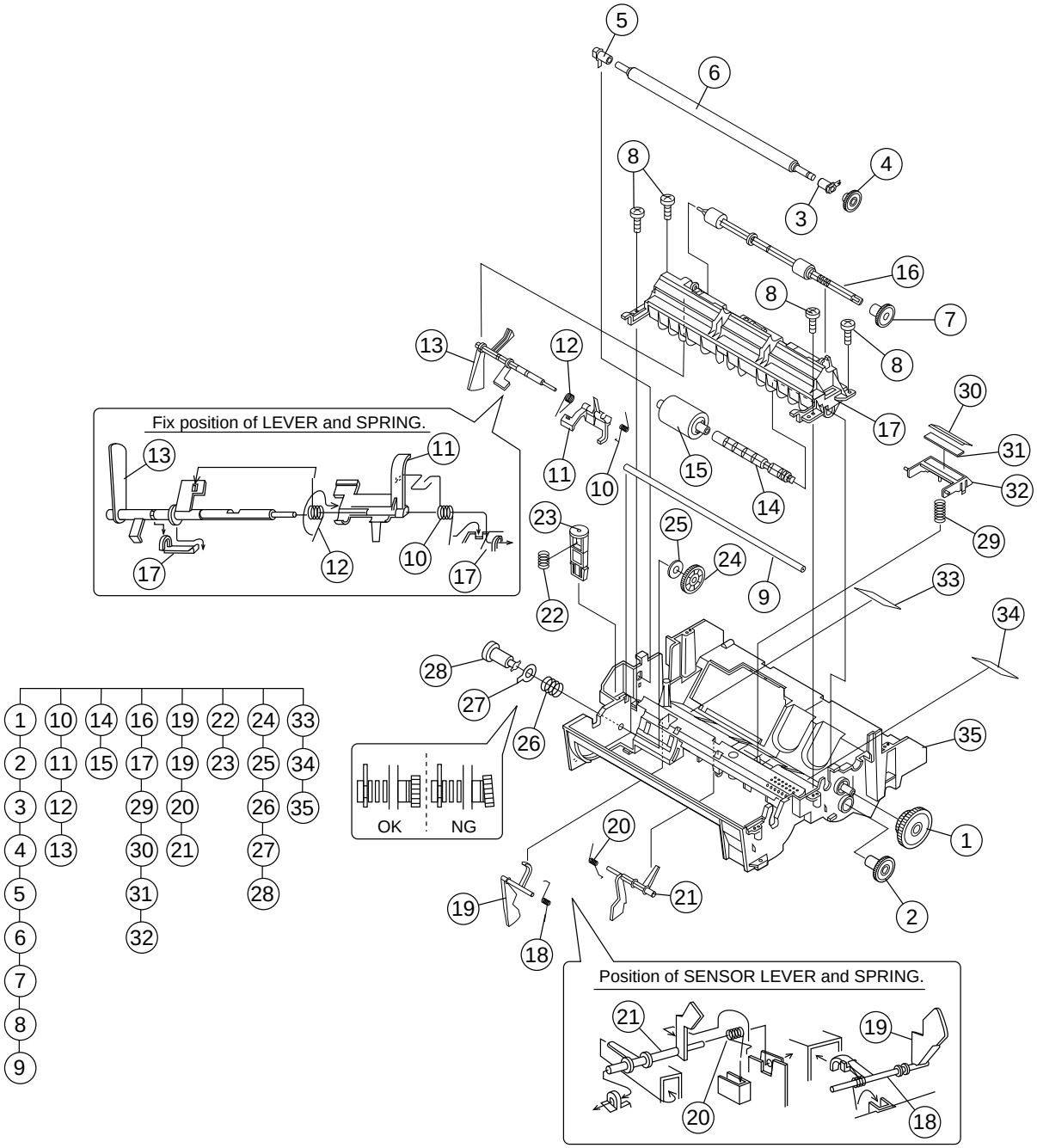


Fig. 9

10 Drive unit frame

Parts list (Fig. 10)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Drive unit	1	8	Cam A	1
2	Planet lever B ass'y	1	9	Planet lever A ass'y	1
3	Idler gear A	1	10	Reduction gear C	1
4	Idler gear C	1	11	Cam switch ass'y	1
5	Reduction gear A	1	12	Screw (3×10)	2
6	Planet lever C ass'y	1	13	Motor	1
7	Cam hold spring	1	14	Motor heat sink	1
			15	Drive unit frame	1

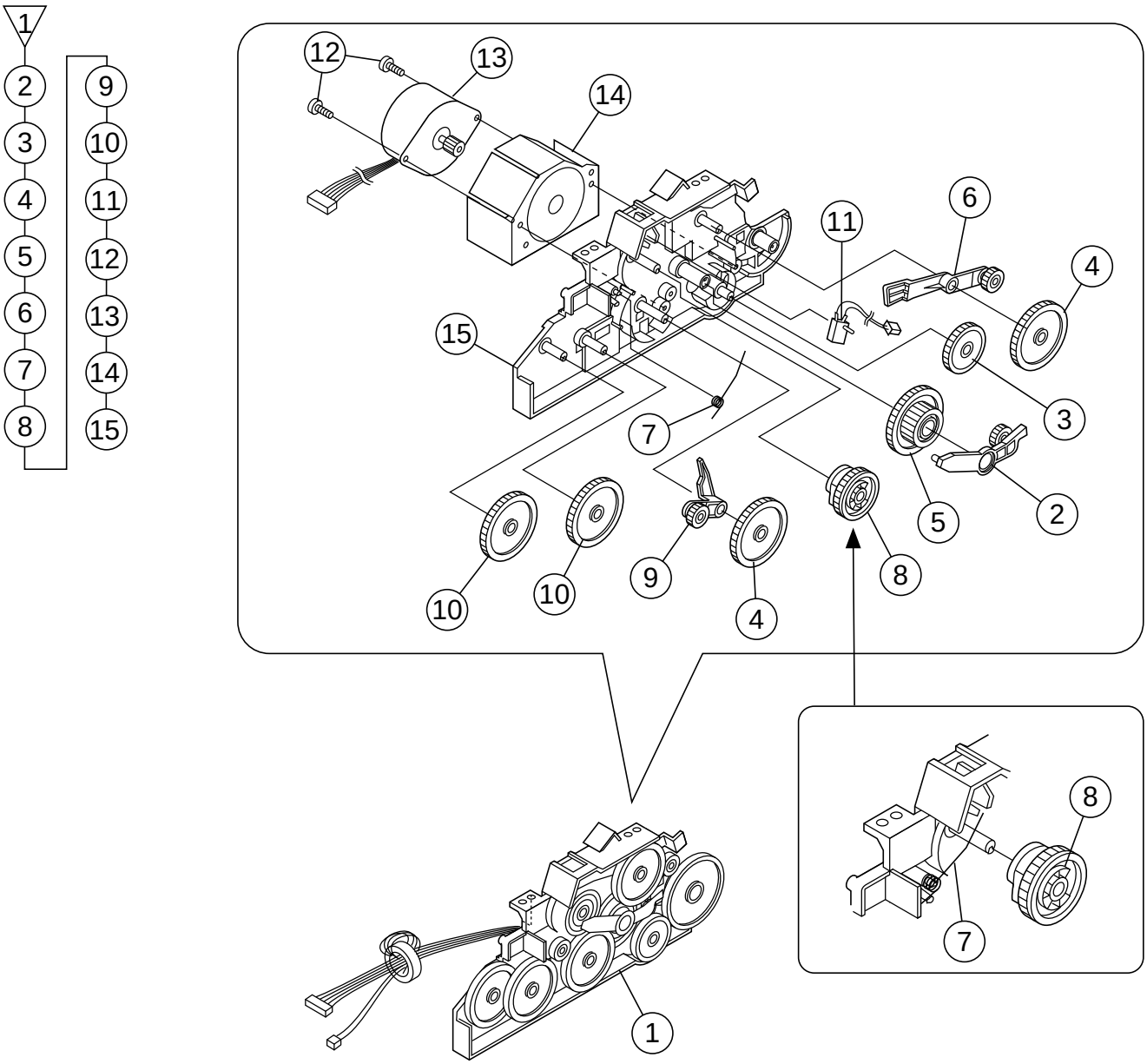


Fig. 10

11 Optical frame

Parts list (Fig. 11)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Optical unit	1	8	LED	1
2	Screw	2	9	Shading sheet 3	2
3	CCD PWB unit	1	10	Mirror 3	1
4	Shading sheet	1	11	Mirror 1	1
5	Lens holding spring	1	12	Mirror 2	1
6	Lens	1	13	Mirror sheet 2	2
7	Reader glass	1	14	Optical frame	1

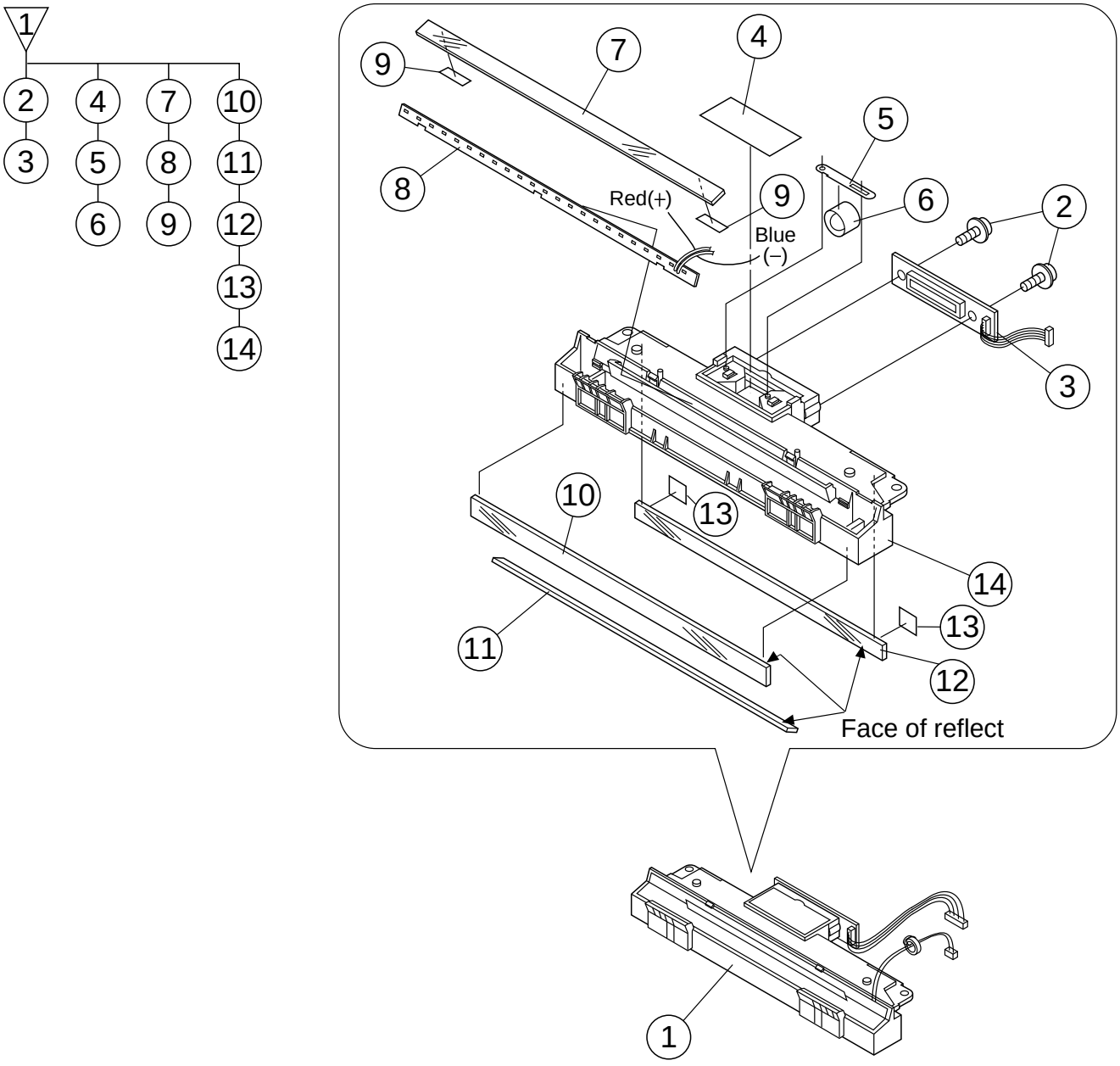


Fig. 11

12 PWB section

Parts list (Fig. 12)

No.	Part name	Q'ty
1	Mechanism unit	1
2	Screw (3×6)	1
3	Earth cable	1
4	Screw (4×6)	1
5	AC cord	1
6	Screw (3×10)	5
7	Connector	2
8	Control PWB unit	1
9	TEL/LIU PWB unit	1
10	Power supply PWB unit	1
11	Shield plate	1
12	Jack sheet	1

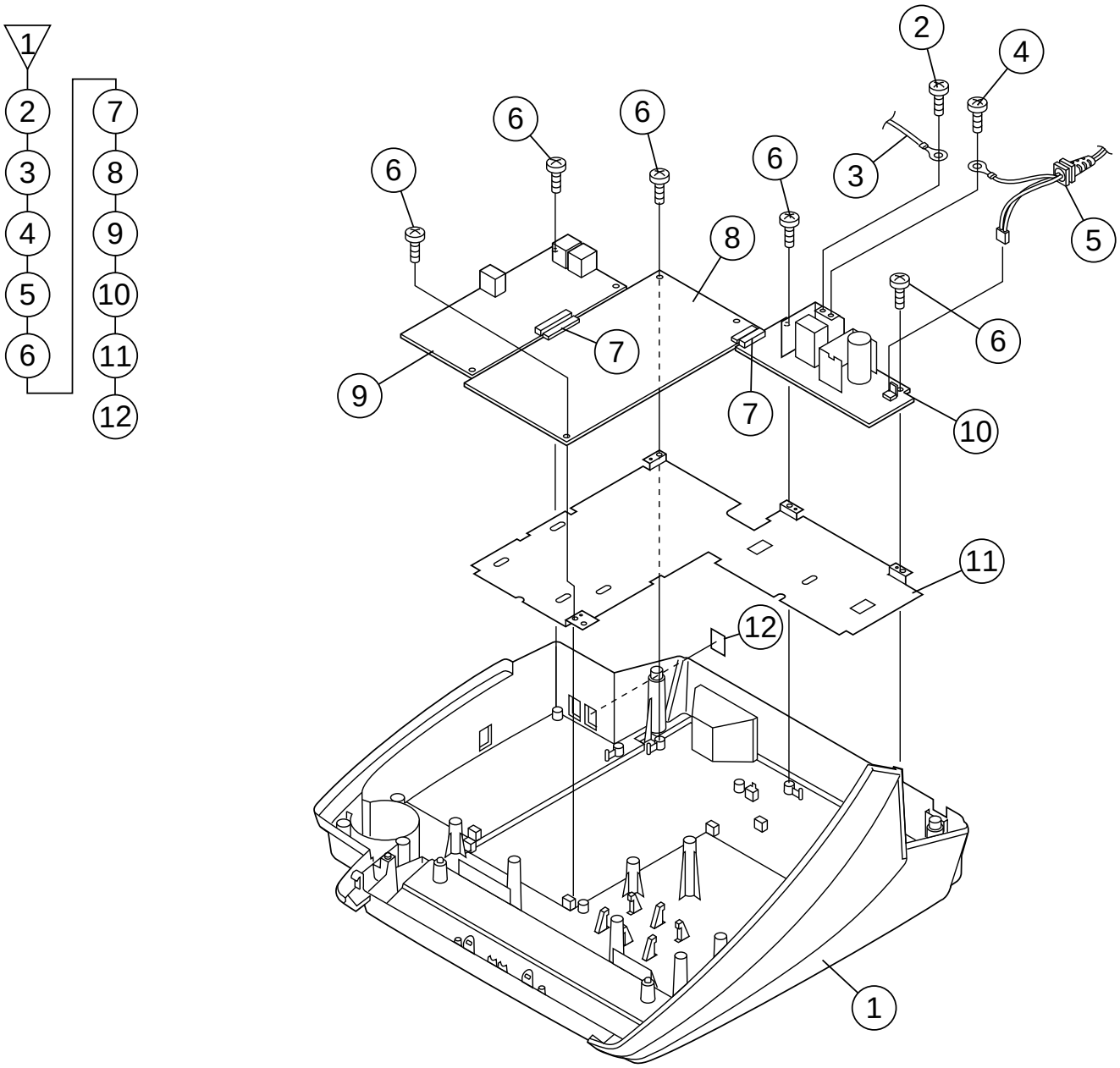


Fig. 12

13 Wire treatment

Parts list (Fig. 13)

No.	Part name	Q'ty
1	Filament tape	1
2	Band (Black)	1
3	Band	5
4	Core (2063)	2
5	Core (2064)	2
6	Screw (3×6)	1
7	Screw (4×6)	1
8	Screw (3×10)	1
9	UL tape	1

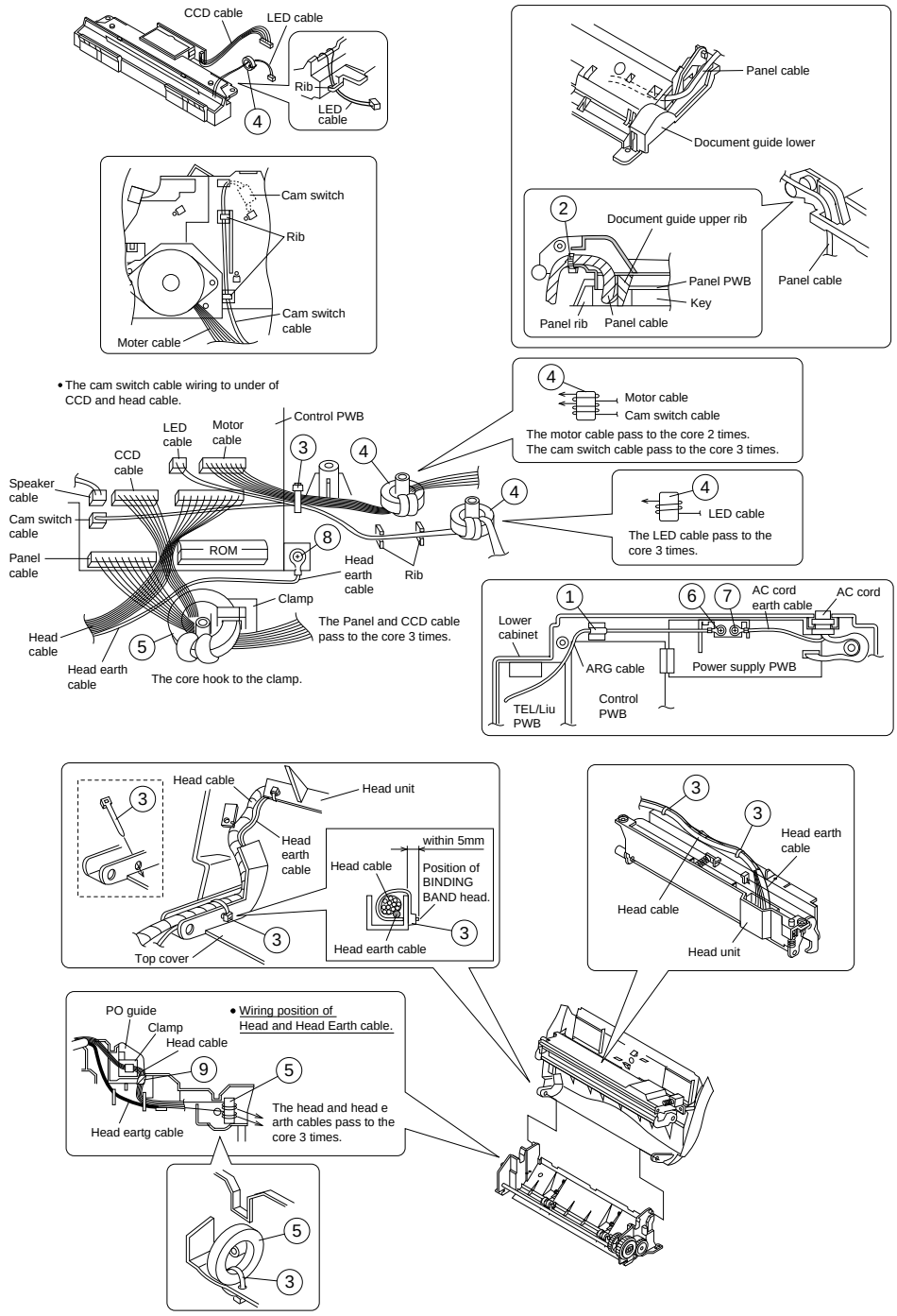
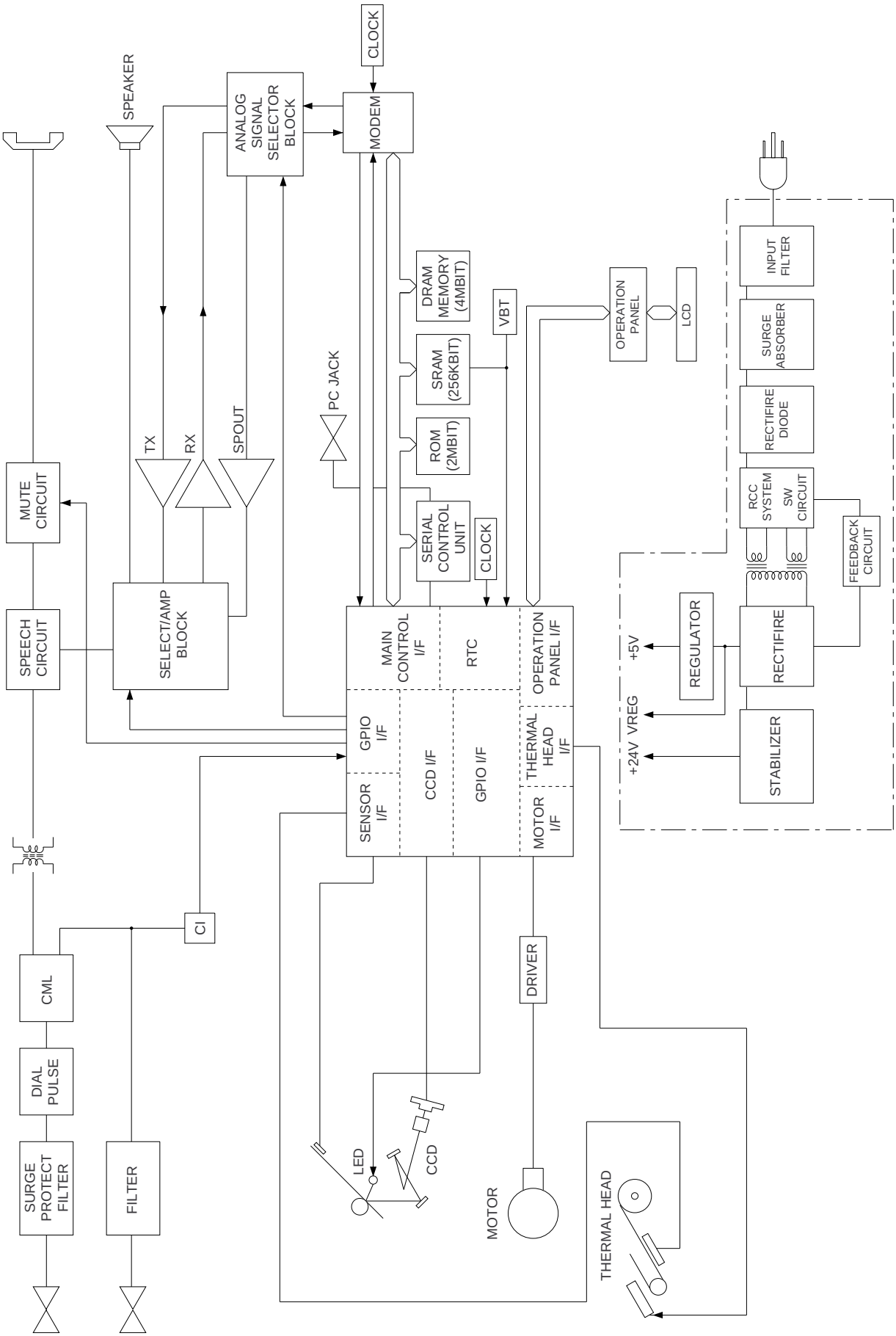


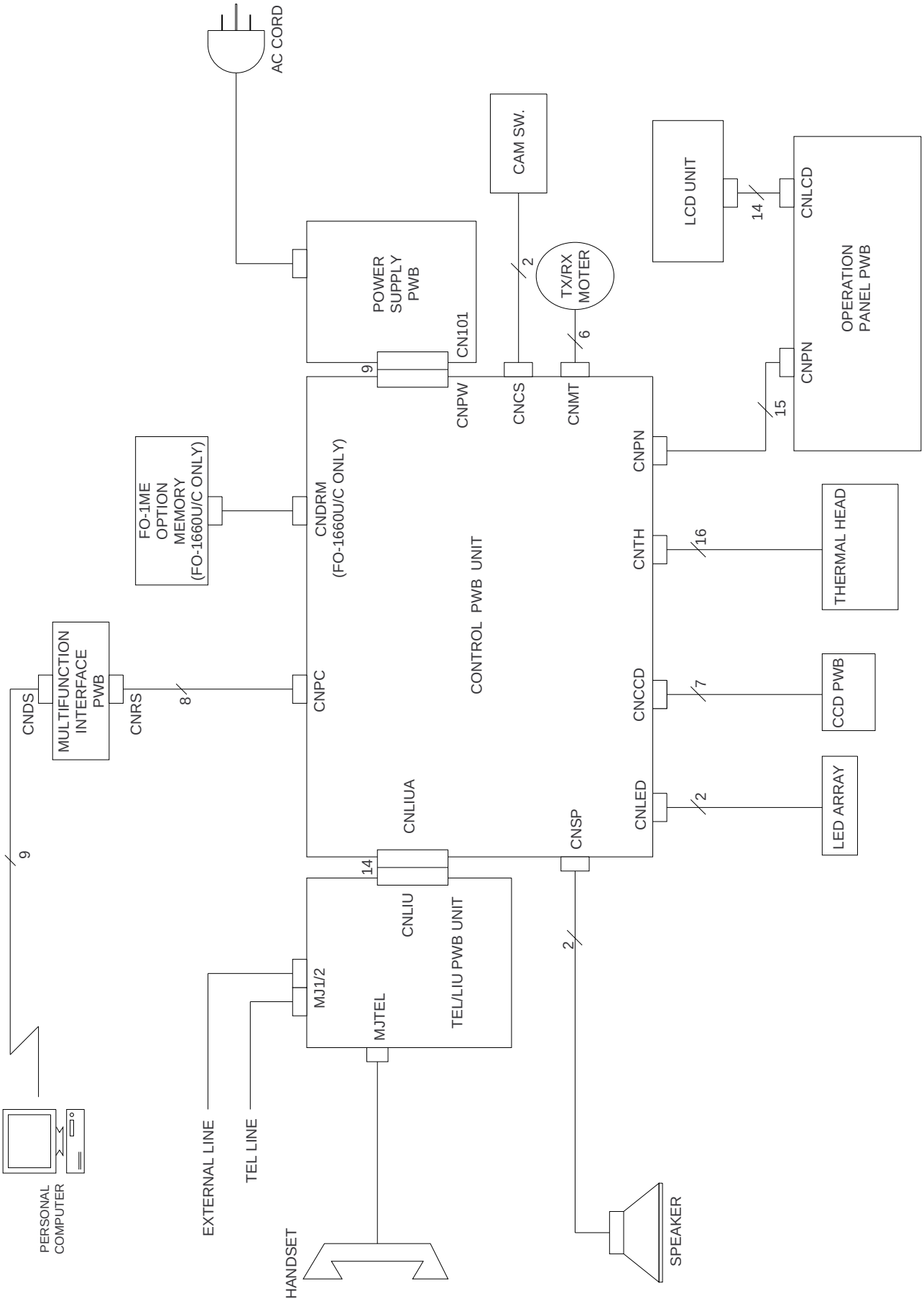
Fig. 13

CHAPTER 4. DIAGRAMS

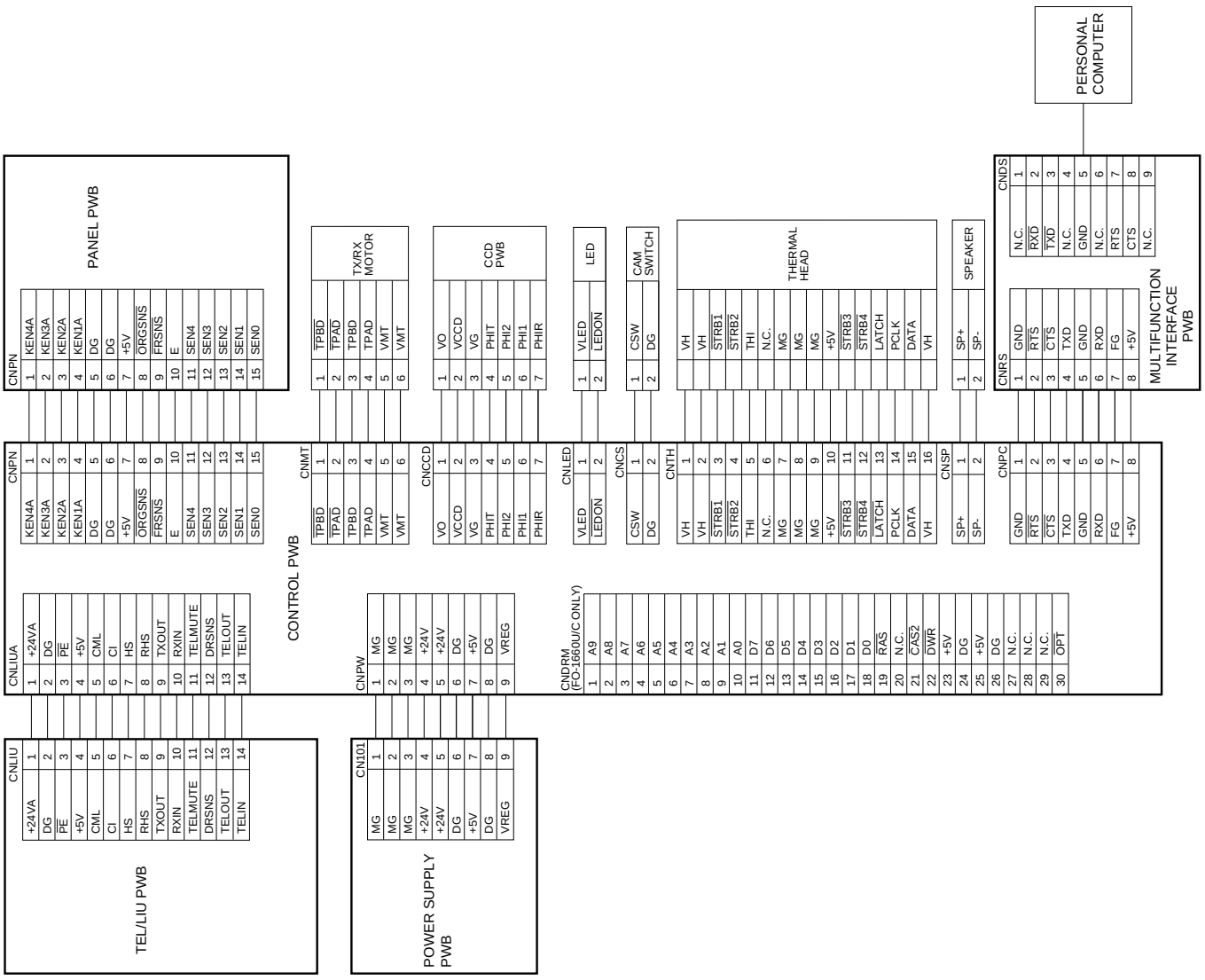
[1] Block diagram



[2] Wiring diagram



[3] Point-to-point diagram



CHAPTER 5. CIRCUIT DESCRIPTION

[1] Circuit description

1. General description

The compact design of the control PWB is obtained by using ROCKWELL fax engine in the main control section and high density printing of surface mounting parts. Each PWB is independent according to its function as shown in Fig. 1.

2. PWB configuration

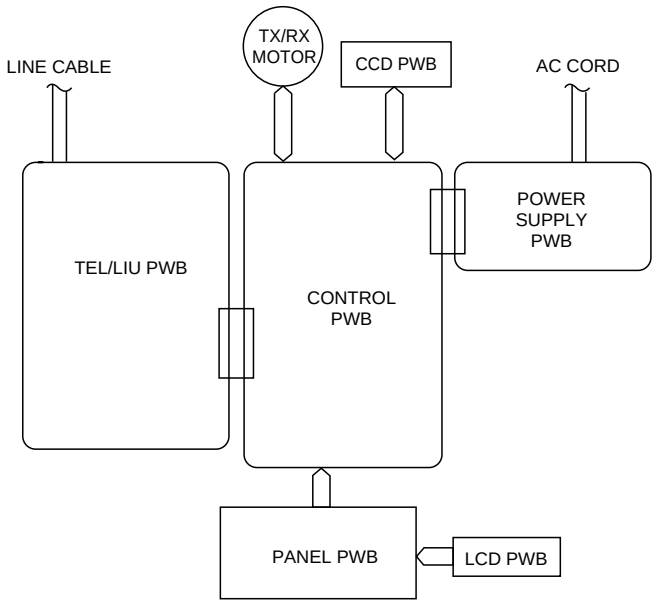


Fig. 1

1) Control PWB

The control PWB controls peripheral PWBs, mechanical parts, transmission, and performs overall control of the unit.

This machine employs a 1-chip modem (R144EFXL) which is installed on the control PWB.

2) TEL/LIU PWB

This PWB controls connection of the telephone line to the unit.

3) Power supply PWB

This PWB provides voltages of +5V, VREG and +24V to the another PWB.

4) Panel PWB

The panel PWB allows input of the operation keys.

5) CCD PWB

This PWB controls the pickup optical device.

6) LCD PWB

This PWB controls the LCD display.

3. Operational description

Operational descriptions are given below:

- Transmission operation

  When a document is loaded in standby mode, the state of the document sensor is sensed via the 1 chip fax engine (XFCR-MVP). If the sensor signal was on, the motor is started to bring the document into the standby position. With depression of the START key in the off-hook state, transmission takes place.

  Then, the procedure is sent out from the modem and the motor is rotated to move the document down to the scan line. In the scan processor, the signal scanned by the CCD is sent to the internal image processor and the AD converter to convert the analog signal into binary data. This binary data is transferred from the scan processor to the image buffer within the RAM and encoded and stored in the transmit buffer of the RAM. The data is then converted from parallel to serial form by the modem where the serial data is modulated and sent onto the line.

- Receive operation

  There are two ways of starting reception, manual and automatic. Depression of the START key in the off-hook mode in the case of manual receive mode, or CI signal detection by the LIU in the automatic receive mode.

  First, the XFCR-MVP controls the procedure signals from the modem to be ready to receive data. When the program goes into phase C, the serial data from the modem is converted to parallel form in the modem interface of the 1 chip fax engine (XFCR-MVP) which is stored in the receive buffer of the RAM. The data in the receive buffer is decoded software-wise to reproduce it as binary image data in the image buffer. The data is DMA transferred to the recording processor within the main control gate array which is then converted from parallel to serial form to be sent to the thermal head. The data is printed line by line by the XFCR-MVP which is assigned to control the motor rotation and strobe signal.

- Copy operation

  To make a copy on this facsimile, the COPY key is pressed when the machine is in stand-by with a document on the document table and the telephone set is in the on-hook state.

  First, depression of the COPY key advances the document to the scan line. Similar to the transmitting operation, the image signal from the CCD is converted to a binary signal in the DMA mode via the 1 chip fax engine (XFCR-MVP) which is then sent to the image buffer of the RAM. Next, the data is transferred to the recording processor in the DMA mode to send the image data to the thermal head which is printed line by line. The copying takes place as the operation is repeated.

[2] Circuit description of control PWB

1. General description

Fig. 2 shows the functional blocks of the control PWB, which is composed of 6 blocks.

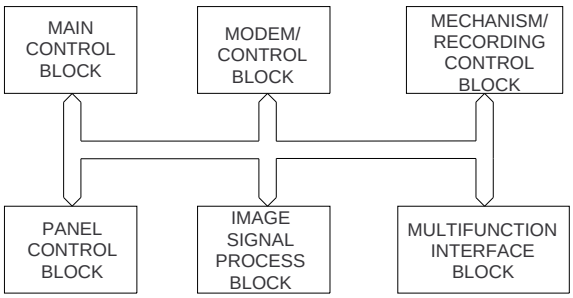


Fig. 2 Control PWB functional block diagram

2. Description of each block

(1) Main control block

The main control block is composed of ROCKWELL 1 chip fax engine (XFCR-MVP), ROM (256KByte), RAM (32KByte), DRAM (512KByte). Devices are connected to the bus to control the whole unit.

1) XFCR-MVP (IC4) : pin-144 QFP (XFCR-MVP)

The FAXENGINE Integrated Facsimile Controllers.

XFCR-MVP, contains an internal 8 bit microprocessor with an external 16 Mbyte address space and dedicated circuitry optimized for facsimile image processing and facsimile machine control and monitoring.

2) 27C020 (IC3): pin-32 DIP (ROM)

EPROM of 2Mbit equipped with software for the main CPU.

3) SRM2B256SLMX70 (IC6): pin-28 SOP (RAM)

Line memory for the main CPU system RAM area and coding/decoding process. Used as the transmission buffer.

Memory of recorded data such as daily report and auto dials. When the power is turned off, this memory is backed up by the lithium battery.

4) IX2129 (IC7): pin-28 SOJ (RAM)

Image memory for recording process.

- Memory for recording pixel data at without paper.

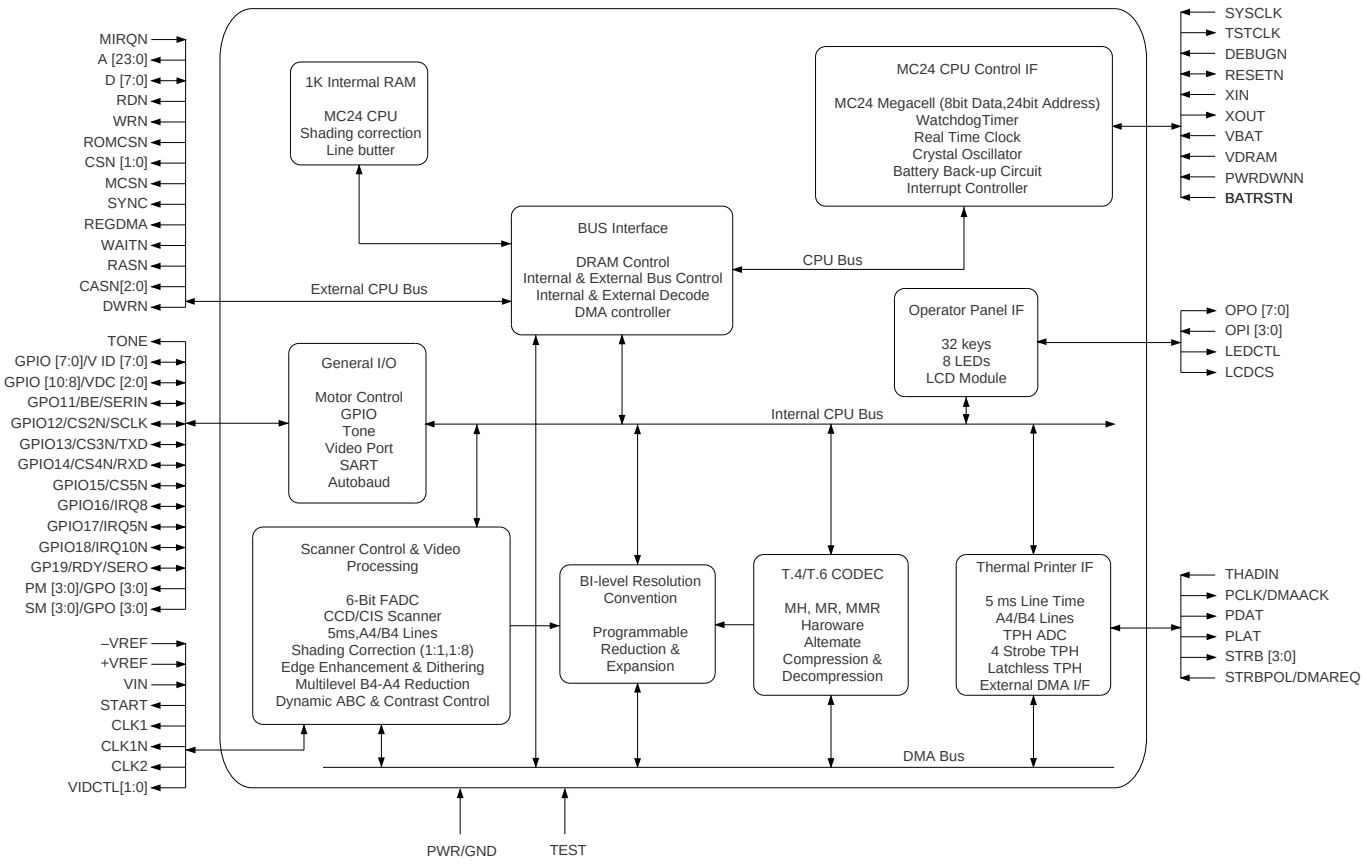


Fig. 3

XFCR-MVP (IC4) Terminal descriptions

Pin Name	Pin No.	I/O	Input Type	Output Type	Pin Description (Active low signals have an "n" pin name ending.)
CPU Control Interface					
MIRQn	135	I	HU	–	Modem interrupt, active low. (Hysteresis In, Internal Pullup.)
SYSCLK	133	I	H	–	System clock. (Hysteresis In.)
TSTCLK	130	O	–	3XC	Test clock.
Bus Control Interface					
A[23:0]	[1:6][8:13] [15:20][22:27]	O	T	3XT	Address bus (24-bit).
D[7:0]	[136:139] [141:144]	I/O	T	3XT	Data bus (8-bit).
RDn	128	O	–	3XTT	Read strobe.
WRn	127	O	–	3XTT	Write strobe.
ROMCSn	120	O	–	2XT	ROM chip select.
CS1n	122	O	–	2XT	I/O chip select.
CS0n	57	O	–	2XTT	SRAM chip select. (Battery powered.)
MCSn	121	O	–	2XC	Modem chip select.
SYNC	126	O	–	2XC	Indicates CPU op code fetch cycle (active high).
REGDMA	124	O	–	3XC	Indicates REGSEL cycle and DMA cycle.
WAITn	125	O	–	3XC	Indicates current TSTCLK cycle is a wait state or a halt state.
RASn	113	O	–	3XTT	DRAM row address select.
CAS[2:0]n	[110:112]	O	–	2XTT	DRAM column address select.
DWRn	109	O	–	3XTT	DRAM write.
Prime Power Reset Logic and Test					
DEBUGn	129	I	HU	–	External non-maskable input (NMI).
RESETn	131	I/O	HU	2XO	XFC Reset.
TEST	58	I	C	–	Sets Test mode (battery powered).
Battery Power Control and Reset Logic					
XIN	59	I	OSC	–	Crystal oscillator input pin.
XOUT	60	O	–	OSC	Crystal oscillator output pin.
PWRDWNn	62	I	H	–	Indicates loss of prime power (results in NMI).
BATRSTn	61	I	H	–	Battery power reset input.
Scanner Interface					
START	101	O	–	2XS	Scanner shift gate control.
CLK1	100	O	–	2XS	Scanner clock.
CLK1n	99	O	–	2XS	Scanner clock-inverted.
CLK2	98	O	–	2XS	Scanner reset gate control (or clock for CIS scanner).
VIDCTL[1:0]	[97:96]	O	–	2XC	Control for video preprocessing circuits.
Printer Interface					
PCLK/ DMAACK	29	O	–	3XC	Thermal Print Head (TPH) clock, or external DMAACK.
PDAT	30	O	–	2XP	Serial printing data (to TPH).
PLAT	31	O	–	3XP	TPH data latch.
STRB[3:0]	[33:36]	O	–	1XP	Strobe signals for the TPH.
STRBPOL/ DMARQ	37	I	C	–	Sets strobe polarity, active high/low or external DMAREQ.

XFCR-MVP (IC4) Terminal descriptions

Pin Name	Pin No.	I/O	Input Type	Output Type	Pin Description
Operator Panel Interface					
OPO[7:0]	[38:40][42:44] [46:47]	O	–	2XL	Keyboard/LED strobe [7:0].
OPI[3:0]	[49:52]	I	HU	–	Keyboard return [3:0]. (Pullup. Hysteresis In.)
LEDCTL	55	O	–	4XC	Indicates outputs OPO [7:0] are for LEDs.
LCDCS	54	O	–	1XC	LCD chip select.
General Purpose I/O					
GPIO[7:0]/ VID[7:0]	[86:87][89:94]	I/O	H	2XC	Programmable: GPIO (8 lines) or video data bus.
GPIO[10:8]/ VDC[2:0]	[83:85]	I/O	H	2XC	Programmable: GPIO (3 lines) or video data control signals.
GPIO11/BE/ SERINP	82	I/O	H	1XC	Programmable: GPIO line, Bus Enable, serial data input (Autobaud).
GPIO12/ CS2n/SCLK	80	I/O	H	2XC	Programmable: GPIO line, I/O chip select or SCLK (SART).
GPIO13/ CS3n/TXD	79	I/O	H	2XC	Programmable: GPIO line, I/O chip select or TXD (SART).
GPIO14/ CS4n/RXD	78	I/O	H	2XC	Programmable: GPIO line, I/O chip select or RXD (SART).
GPIO15/ CS5n	77	I/O	H	2XC	Programmable: GPIO line or I/O chip select.
GPIO16/ IRQ8	76	I/O	H	1XC	Programmable: GPIO line or active high interrupt.
GPIO17/ IRQ5n	75	I/O	H	1XC	Programmable: GPIO line or active low interrupt.
GPIO18/ IRQ10n	74	I/O	H	1XC	Programmable: GPIO line or active low interrupt.
GPIO[19]/RDY /SEROUT	73	I/O	H	1XC	Programmable: GPIO line, Ready or Serial out (Autobaud).
Miscellaneous					
SM[3:0]/ GPO[7:4]	[103:106]	O	–	1XC	Programmable: scan motor control pins or GPO pins.
PM[3:0]/ GPO[3:0]	[115:118]	O	–	1XC	Programmable: print motor control pins or GPO pins.
TONE	119	O	–	1XC	Tone output signal.
Power, Reference Voltages, Ground					
–Vref	66	I	–VR	–	Negative Reference Voltage for Video A/D.
+Vref	68	I	+VR	–	Positive Reference Voltage for Video A/D.
ADGA	69		VADG		A/D Analog Ground.
ADVA	70		VADV		A/D Analog Power.
ADGD	72		VADG		A/D Digital Ground.
ADVD	71		VADV		A/D Digital Power.
VIN	67	I	VA	–	Analog Video A/D input.
THADI	65	I	TA	–	Analog Thermal A/D input.
VSS (12)	134, 132, 108, 95, 88, 64, 56, 53, 45, 28, 21,7				Digital Ground.
VDD (8)	140, 123, 102, 81, 48, 41, 32, 14				Digital Power.
VDRAM	114				Battery power for DRAM refresh.
VBAT	63				Battery Power, for RTC and SRAM.
No Connection					
NC	107				No connection.

(2) Panel control block

The following controls are performed by the XFCR-MVP.

- Operation panel key scanning
- Operation panel LCD display

(3) Mechanism/recording control block

The following controls are performed by XFCR-MVP.

- Motor control
- Thermal head control
- Cutter motor control
- Sensor detection

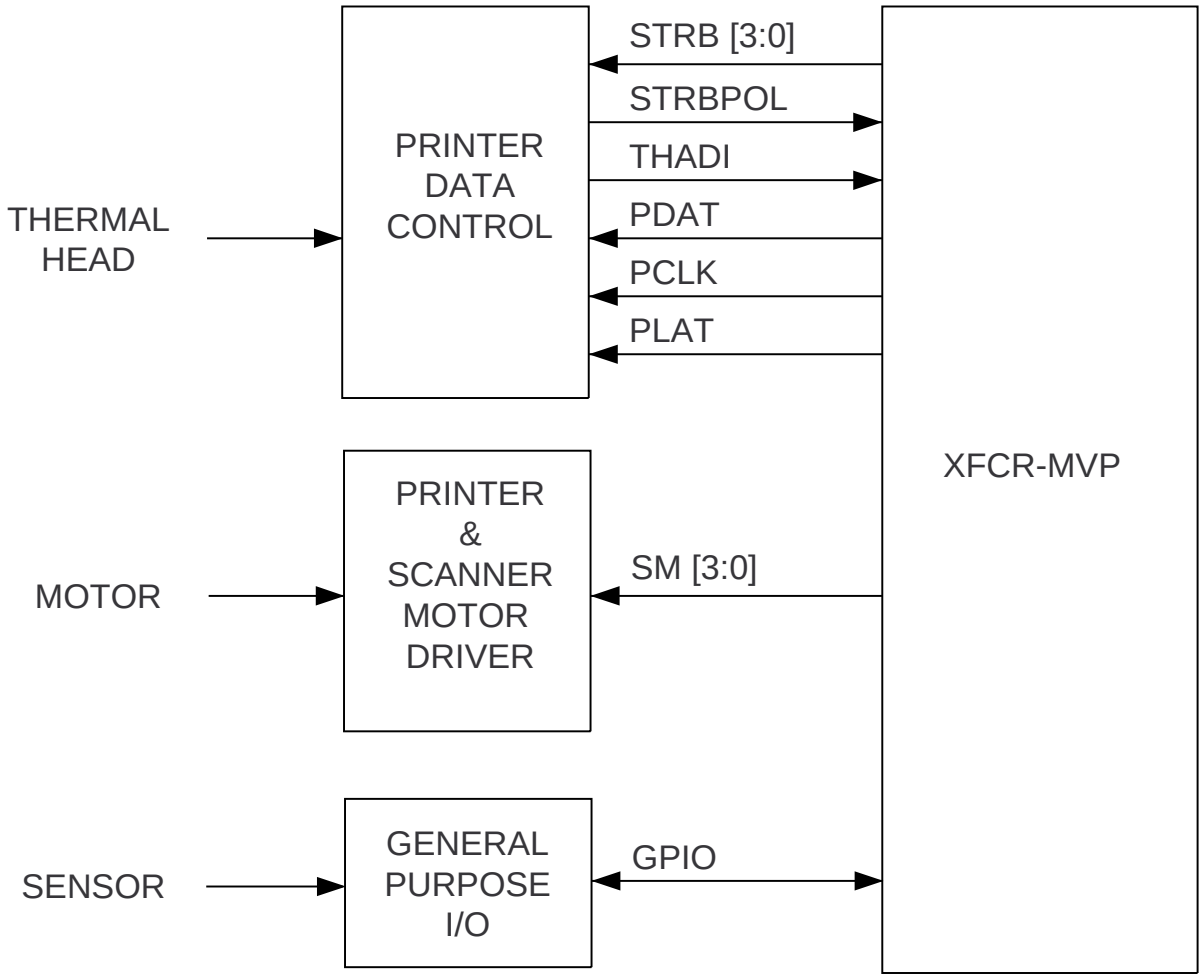


Fig. 4

(4) Modem (R144EFXL) block

INTRODUCTION

The Rockwell R144EFXL MONOFAX modem is a synchronous 14400 bits per second (bps) half-duplex modem with error detection and DTMF reception. It has low power consumption and requires only a single +5V DC power supply. The modem is housed in a single VLSI device package.

The modem can operate over the public switched telephone network (PSTN) through line terminations provided by a data access arrangement (DAA).

The modem satisfies the requirements specified in CCITT recommendations V.33, V.17, V.29, V.27 ter, V.21 Channel 2 (FSK), T.4, and T.3, and meets the binary signaling requirements of T.30.

The modem can operate at 9600, 7200, 4800, 2400, or 300 bps. The modem supports the V.17 signalling rates of 14400, 12000, 9600, and 7200 bps using trellis-coded modulation (TCM). In addition, the modem supports V.27 ter and V.17 short trains.

The modem can also perform HDLC framing according to T.30 at 14400, 12000, 9600, 7200, 4800, 2400, or 300 bps.

An FSK flag pattern (7E) detector facilitates FSK detection in the high speed receiver.

The voice mode allows the host computer (DTE) to transmit and receive audio signals and messages.

The modem includes a programmable DTMF receiver and three programmable tone detectors which operate concurrently with the V.21 channel 2 (FSK) receiver. The three programmable tone detectors also operate concurrently with the voice mode receiver.

General purpose input/output (GPIO) and general purpose input (GPI) pins are available for host assignment in the 100-pin PQFP.

The modem's small size, single voltage supply, and low power consumption allow the design of compact system enclosures for use in both office and home environments.

The modem is available in either a 100-pin plastic quad flat pack (PQFP) or a 64-pin quad in-line package (QUIP). The package are shown in Figure 1. The general modem interface is illustrated in Figure 2.

Additional modem information is described in the R144EFXL MONOFAX Modem Designer's Guide (Order No. 895).

FEATURES

- Group 3 facsimile transmission/reception
  - CCITT V.33, V.17, V.29, V.27 ter, V.21 Channel 2 (FSK), T.4, and T.30
  - HDLC Framing at all speeds
- Group 2 facsimile transmission/reception
  - CCITT T.3
  - External clock tracking
- V.27 ter short train
- V.29 short train
- Concurrent DTMF, FSK, and tone reception
  - Concurrent DTMF reception, FSK flag pattern (7E) detection, and tone detection
- FSK flag pattern detect during high speed reception
- Voice mode transmission/reception
- 2-wire half-duplex
- Programmable transmit level: 0 to -15 dBm
- Programmable transmit analog attenuation:

  0 dBm to 14 dB in 2 dB steps
- Receive dynamic range: 0 to –43 dBm
- Programmable dual tone generation
- Programmable tone detection
- Programmable turn-on and turn-off thresholds
- Programmable interface memory interrupt
- Diagnostic capability
  - Allows telephone line quality monitoring
- Compromise equalization
  - Automatic adaptive and fixed digital
- DTE interface: two alternate ports
  - Selectable microprocessor bus (6500 or 8085)
  - CCITT V.24 (EIA-232-D compatible) interface
- TTL and CMOS compatible
- Low power consumption:
  - Operating mode: 270 mW (typical)
  - Sleep mode: 17 mW (typical)
- Single +5VDC power supply
- Single Package
  - 100-pin PQFP or 64-pin QUIP
- Hardware compatible with the R96DFXL MONOFAX modem
- Software compatible with all MONOFAX modems

R144EFXL (IC11) Hardware Interface Signals

Pin Signals – 100-Pin PQFP

Pin No.	Signal Name	I/O Type
1	GP03	IA/OB
2	GP04	IA/OB
3	GP05	IA/OB
4	GP06	IA/OB
5	GP07	IA/OB
6	0VD2	GND
7	0VD2	GND
8	D7	IA/OB
9	D6	IA/OB
10	D5	IA/OB
11	D4	IA/OB
12	D3	IA/OB
13	D2	IA/OB
14	D1	IA/OB
15	D0	IA/OB
16	0VD2	GND
17	0VA	GND
18	RAMPIN	R
19	NC	
20	NC	
21	0VA	GND
22	+5VD2	PWR
23	0VD1	GND
24	SWGAINI	R
25	ECLKIN1	R
26	SYNCIN1	R
27	NC	
28	NC	
29	NC	
30	0VA	GND
31	NC	
32	NC	
33	NC	
34	DAIN	R
35	ADOUT	R
36	BYPASS	IC
37	RCVI	R
38	TXLOSS3	IC
39	TXLOSS2	IC
40	TXLOSS1	IC
41	NC	
42	NC	
43	0VA	GND
44	TXOUT	AA
45	RXIN	AB
46	+5VA	PWR
47	0VA	GND
48	AGD	R
49	AOUT	R
50	0VD1	GND
51	NC	
52	$\overline{\text{IRQ}}$	OC
53	$\overline{\text{WRITE}}$-R/$\overline{\text{W}}$	IA
54	$\overline{\text{CS}}$	IA
55	$\overline{\text{READ}}$-ϕ2	IA
56	RS4	IA
57	RS3	IA
58	RS2	IA
59	RS1	IA
60	RS0	IA
61	GP13	IA/OB
62	+5VD1	PWR
63	GP11	IA/OB
64	$\overline{\text{RTS}}$	IA
65	$\overline{\text{EN85}}$	R
66	0VD2	GND
67	$\overline{\text{PORI}}$	ID
68	XTLI	R
69	XTLO	R
70	XCLK	OD
71	YCLK	OD
72	+5VD1	PWR
73	DCLK1	R
74	SYNCIN2	R
75	GP16	IA/OB
76	GP17	IA/OB
77	0VD2	GND
78	$\overline{\text{CTS}}$	OA
79	TXD	IA
80	0VD2	GND
81	0VD2	GND
82	DCLK	OA
83	EYESYNC	OA
84	EYECLKX	OA
85	EYECLK	OA
86	EYEX	OA
87	ADIN	R
88	DAOUT	R
89	0VD2	GND
90	EYEY	OA
91	GP21	IA/OB
92	0VD2	GND
93	GP20	IA/OB
94	GP19	IA/OB
95	RXD	OA
96	$\overline{\text{RLSD}}$	OA
97	0VD2	GND
98	RCVO	R
99	SWGAINO	R
100	GP02	IA/OB

Notes:

1. NC = No connection; leave pin disconnected (open).
2. I/O Type: = Digital signals: see Table 9;
   Analog signals: see Table 10.
3. R = Required modem inter-connection; no connection to host equipment.

(5) Image signal process block

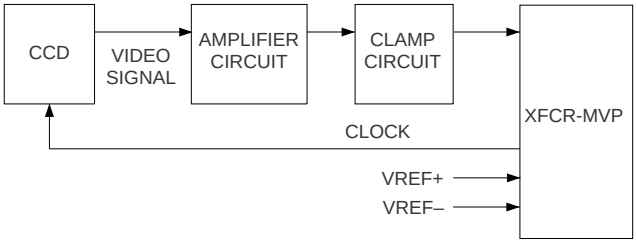


Fig. 5

The CCD is driven by the 1-chip engine (XFCR-MVP), and the output video signal from the CCD is input into the XFCR-MVP through the amplifying circuit and clamp circuit.
The ADC and buffer are provided in the XFCR-MVP, and the digital image processing is performed.

(6) Speaker amplifier

The speaker amplifier monitors the line under the on-hook mode, outputs the buzzer sound generated from the XFCR-MVP, ringer sound, DTMF generated from the modem, and line sound.

(7) Adjustment of voice/ringer volume

The voice/ringer volume can be adjusted by using the panel bottons "UP" and "DOWN".

- The ringer volume can be adjusted in the Stand-by mode by pressing the UP/DOWN button.
- The reception level can be adjusted by pressing the UP/DOWN button when the handset is located in the off-hook state.
- The speaker volume can be adjusted by using the speaker key.

(8) Multifunction interface block

IC5 (M66230FP) for the asynchronous serial communication controlled with IC4 (XFCR-MVP) executes the serial communication with the personal computer.

1) M66230FP (IC5): pin-28 SOP(UART)

The data is received in parallel from IC4 (FXCR-MVP), is converted in series and transferred to the personal computer. Moreover, the serial data from the personal computer is received, is converted into parallel, and is output to IC4 (FXCR-MVP).

[3] Circuit description of TEL/LIU PWB

(1) TEL/LIU block operational description

1) Block diagram

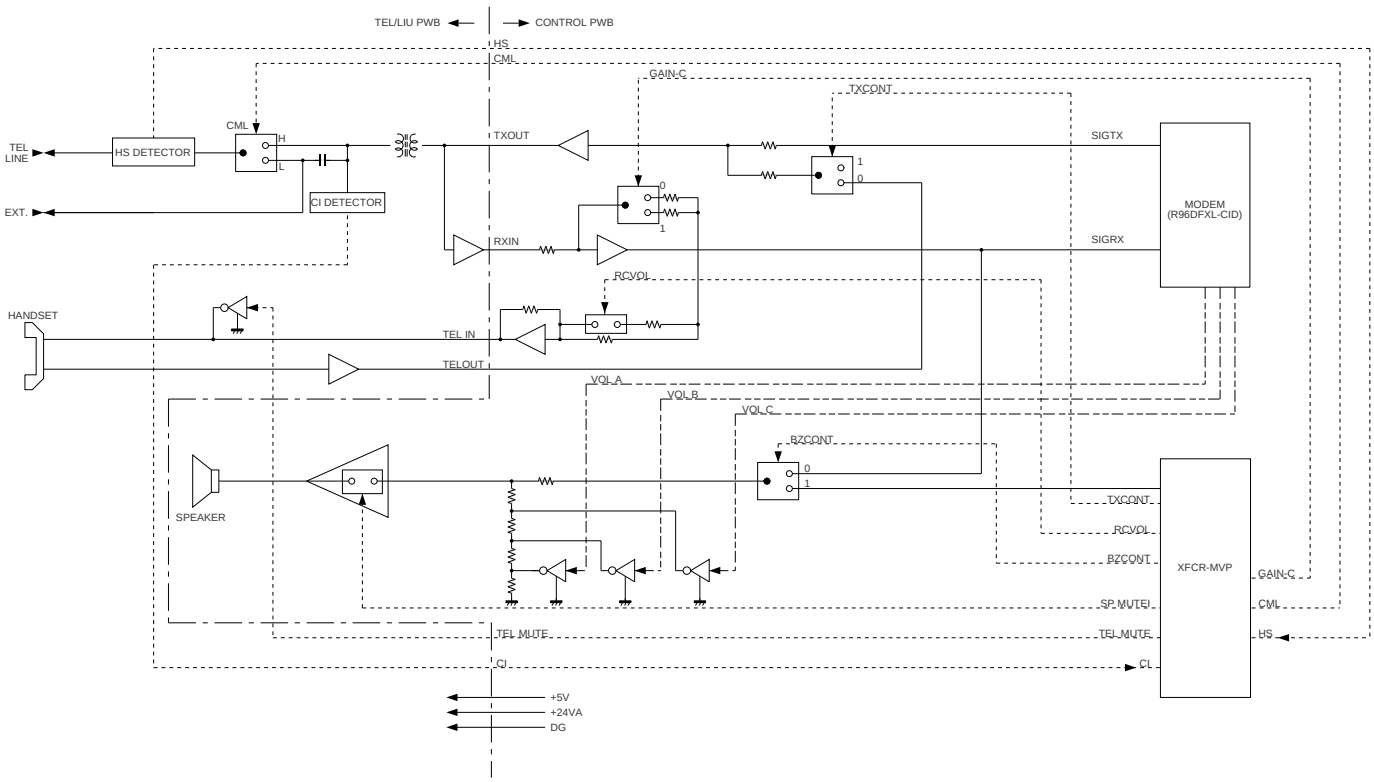


Fig. 6

2) Circuit description

The TEL/LIU PWB is composed of the following 10 blocks.

1. Surge protection circuit
2. On-hook status detection circuit
3. Dial pulse generation circuit
4. CML relay
5. Matching transformer
6. Hybrid circuit
7. Signal selection
8. Sensor circuit
9. Cl detection circuit
10. Power supply and bias circuit

3) Block description

1. Surge Protection circuit

This circuit protects the circuit from the surge voltage occurring on the telephone line.

- The AR1 protects the circuit from the 390V or higher line surge voltages.
- The VA1 and VA2 protect the circuit from the 470V or higher vertical surge voltages.

2. On-hook status detection circuit

The on-hook status detection circuit detects the Status of the hook switch (RHS) of Built-in telephone, and the status of the hook of a telephone externally connected.

- The status of on-hook switch (RHS) is determined from the logical level of $\overline{\text{RHS}}$ signal.

  $\overline{\text{RHS}}$ LOW: ON-HOOK

  $\overline{\text{RHS}}$ HIGH: OFF-HOOK

- External telephone hook status detection circuit ($\overline{\text{HS1}}$)

This circuit comprises the photo-coupler PC1, resistors R3 and R4, Zener diodes ZD1 and ZD2.

When an external telephone is connected and enters the on-hook mode, the LED of photo-coupler PC1 emits light and the light receiving element turns on. The status signal $\overline{\text{HS1}}$ is input to the pin 84 of (XFCR-MVP) (IC4: control PWB).

$\overline{\text{HS1}}$ LOW: EXT. TEL OFF-HOOK

$\overline{\text{HS1}}$ HIGH: EXT. TEL ON-HOOK

3. Dial pulse generation circuit

The pulse dial generation circuit comprises the CML relay.

4. CML relay

The CML relay switches over connection to the matching transformer T1 while the FAX or built-in telephone is being used.

5. Matching transformer

The matching transformer performs electrical insulation from the telephone line and impedance matching for transmitting the TEL/FAX signal.

6. Hybrid circuit

The hybrid circuit performs 2-wire-to-4-wire conversion using the IC2 of operational amplifier, transmits the voice transmission signal to the line, and feeds back the voice signal to the voice reception circuit as the side tone.

7. Signal selection

The following signals are used to control the transmission line of TEL/FAX signal. For details, refer to the signal selector matrix table.

[Control signals from output port]

<table>
<tr><th>Signal Name</th><th>Description</th></tr>
<tr><td>CML</td><td>Line connecting relay and DP generating relay
H: Line make
L: Line break</td></tr>
<tr><td>SP MUTE</td><td>Speaker tone mute control signal
H: Muting (Power down mode)
L: Muting cancel (Normal operation)</td></tr>
<tr><td>TEL MUTE</td><td>Handset reception mute control signal
H: Muting
L: Muting cancel</td></tr>
<tr><td>RCVOL

(The circuit is located in the control PWB.)</td><td>Handset receiver volume control signal
<table>
<tr><th>Volume</th><th>High</th><th>Middle</th><th>DTMF sending</th></tr>
<tr><td>RCVOL</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>
SIDE KICK is two-stage switching.
Note: The DTMF sending listed above is DTMF signal sending in the handset OFF-HOOK mode.</td></tr>
<tr><td>VOL A
VOL B
VOL C

(The circuit is located in the control PWB.)</td><td>Speaker volume control signal,
VRSEL1 VRSEL2 matrix
<table>
<tr><th></th><th>VOL A</th><th>VOL B</th><th>VOL C</th><th>RING./ Receiving</th><th>Buzzer</th><th>DTMF</th></tr>
<tr><td></td><td>L</td><td>L</td><td>L</td><td>High</td><td>—</td><td>High</td></tr>
<tr><td></td><td>H</td><td>L</td><td>L</td><td>Middle</td><td>Fixed</td><td>Middle</td></tr>
<tr><td></td><td>L</td><td>L</td><td>H</td><td>Low</td><td>—</td><td>Low</td></tr>
</table></td></tr>
<tr><td>TXCONT
(The circuit is located in the control PWB.)</td><td>TXOUT mute signal
H: Signal sending, when transmitting
L: During reception, transmission mute, (during standby)</td></tr>
<tr><td>GAIN-C
(The circuit is located in the control PWB.)</td><td>Reception gain switching signal
L: When connected to line, 1: 1 gain
H: When not connected to line, HIGH gain</td></tr>
<tr><td>MPX A
(The circuit is located in the control PWB.)</td><td>Transmission/transfer switching signal
H: When transmitting modem signal (during standby)
L: When transferring</td></tr>
<tr><td>BZCONT
(The circuit is located in the control PWB.)</td><td>Speaker output signal switching
H: Buzzer signal output
L: When monitoring line signal</td></tr>
</table>

[Signals for status recognition according to input signals]

Signal Name	Function
$\overline{\text{RHS}}$	H: The handset is in the on-hook state. L: The handset is in the off-hook state.
CI	Incoming call (CI) detection signal
$\overline{\text{HS}}$	H: The handset or external telephone is in the on-hook state. L: The handset or external telephone is in the off-hook state.
P.E	L: No recording paper. H: Recording paper exists.
DRSNS	H: Door open. L: Door close.

[Other signals]

Signal Name	Function
TEL IN	Receiving signal from line or modem
TEL OUT	Transfer signal to line
TXOUT	Transmission (DTMF) analog signal output from modem
RXIN	Reception (DTMF, others) analog signal input into modem

NO	Signal Name (CNLIU)	NO	Signal Name (CNLIU)
1	+24VA	8	RHS
2	DG	9	TXOUT
3	$\overline{\text{PE}}$	10	RXIN
4	+5V	11	TELMUTE
5	CML	12	DRSNS
6	CI	13	TELOUT
7	HS	14	TELIN

8. Sensor circuit

For the recording paper sensor (P.E), when there is recording paper, the photo transistor in the light receiving side is ON and the detection level is LOW. When there is no recording paper, the photo transistor in the light receiving side is OFF and the detection level is HIGH.

9. CI detection circuit

The CI detection circuit detects the CI signals of 15.3 Hz to 68 Hz. A CI signal, which is provided to the photo-coupler PC1 through the C1 (0.82 uF), R3 (22 K), and ZD3 when the ring signal is inputted from the telephone line.

10. Power supply and bias circuits

The voltages of +5V and +24VA are supplied from the control PWB unit.

(Example: Fax signal send)

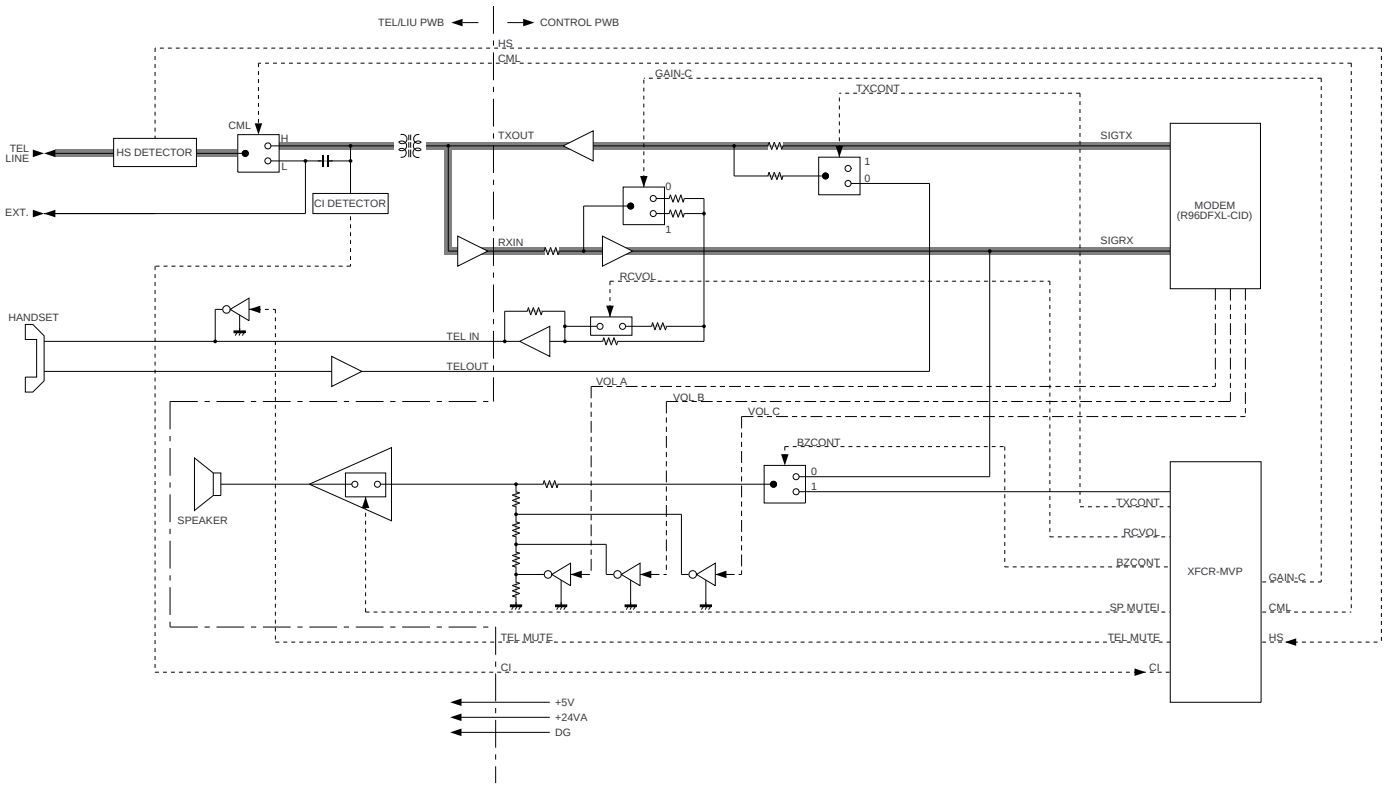


Fig. 7

[4] Circuit description of power supply PWB

1. Block diagram

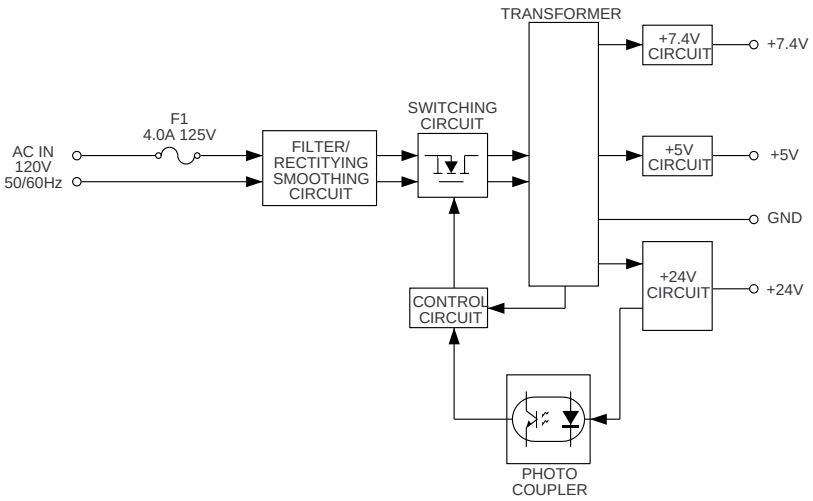


Fig. 8

The power unit intakes input of AC 120V, 50/60 Hz and supplies output of +24V, +7.4V and +5V as shown in the block diagram. (See Fig. 8.)

2-1. Filter, rectifying and smoothening circuit

In the filter section, the noise generated from the power unit is eliminated from being discharged to the external, and external noise is prevented from entering. Thunder or other excessive surge is prevented by the varistor Z1.
In the rectifying and smoothening section, AC input is rectified by the diodes D10, 11, 12 and 13, and is smoothened by the capacitor C5. Thus, DC voltage is supplied to the switching section. Moreover, the thermistor NTC1 prevents surge current when the power is turned on.

2-2. Switching section

The circuit uses the ringing choke converter of a self-excited type. Since MOS.
FETQ1 is repeatedly turned on and off in this system, the DC voltage supplied from the rectifying and smoothening section is converted into the high frequency pulses. While Q1 is on, energy is accumulated in the primary winding of the transformer T1, and while Q1 is off, energy is discharged to the secondary side. Thus, the power is supplied.

Moreover, the frequency is varied depending on the load of the output. As the load becomes the heavier, the frequency becomes the smaller to extend the ON period.
The constant voltage is controlled by applying the feedback to the control circuit through the photo coupler PC1 from +24V output. The overcurrent-protective circuit detects that the ON period becomes the wider as the output load becomes the heavier. For the control, the OFF period is extended by the control circuit to squeeze the energy which is accumulated in the primary winding of the transformer T1.
For protection against overvoltage, the rise of the output voltage of +24V on the secondary side is brought into the overcurrent state through the continuity of the power zener diode D104 between +24V output and GND. Thus, the overcurrent-protective circuit of the control circuit is activated for the protection.

2-3. +24V circuit

Output is supplied by rectifying and smoothening the output of the transformer T1 with the diode D101 and capacitor C101.

2-4. +5V circuit

+5 V output is generated by rectifying and smoothening the output of the transformer T1 with the diode D102 and capacitor C102 and stabilizing it with the 3-terminal regulator IC103.

[5] Circuit description of CCD PWB

The CCD board picks up optical information from the document, converts it into an electrical (analog) signal and transfers it to the control board.

(1) Block diagram

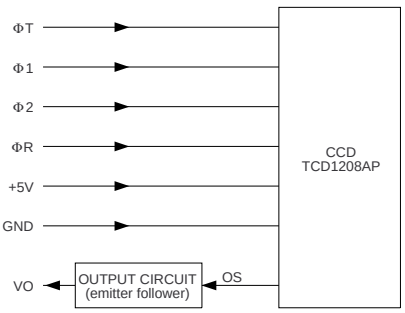


Fig. 9

(2) Description of blocks

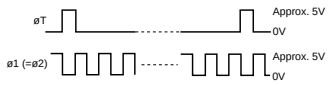
1. CCD

The TCD1208GL is a highly sensitive charged coupled image sensor that consists of 2160 picture elements.

Receiving four drive signal (ϕT, ϕ2, ϕ1, ϕR) from the control board, the tranferred photoelectric analog signal OS is impedance converted, and the signal VO, is supplied to the control board.

2. Waveforms

1. ϕ1, ϕ2 (=$\overline{\phi 1}$) signals within the control board.



2. OS ϕ

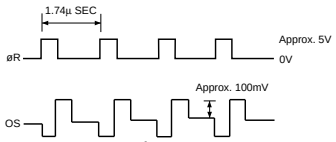
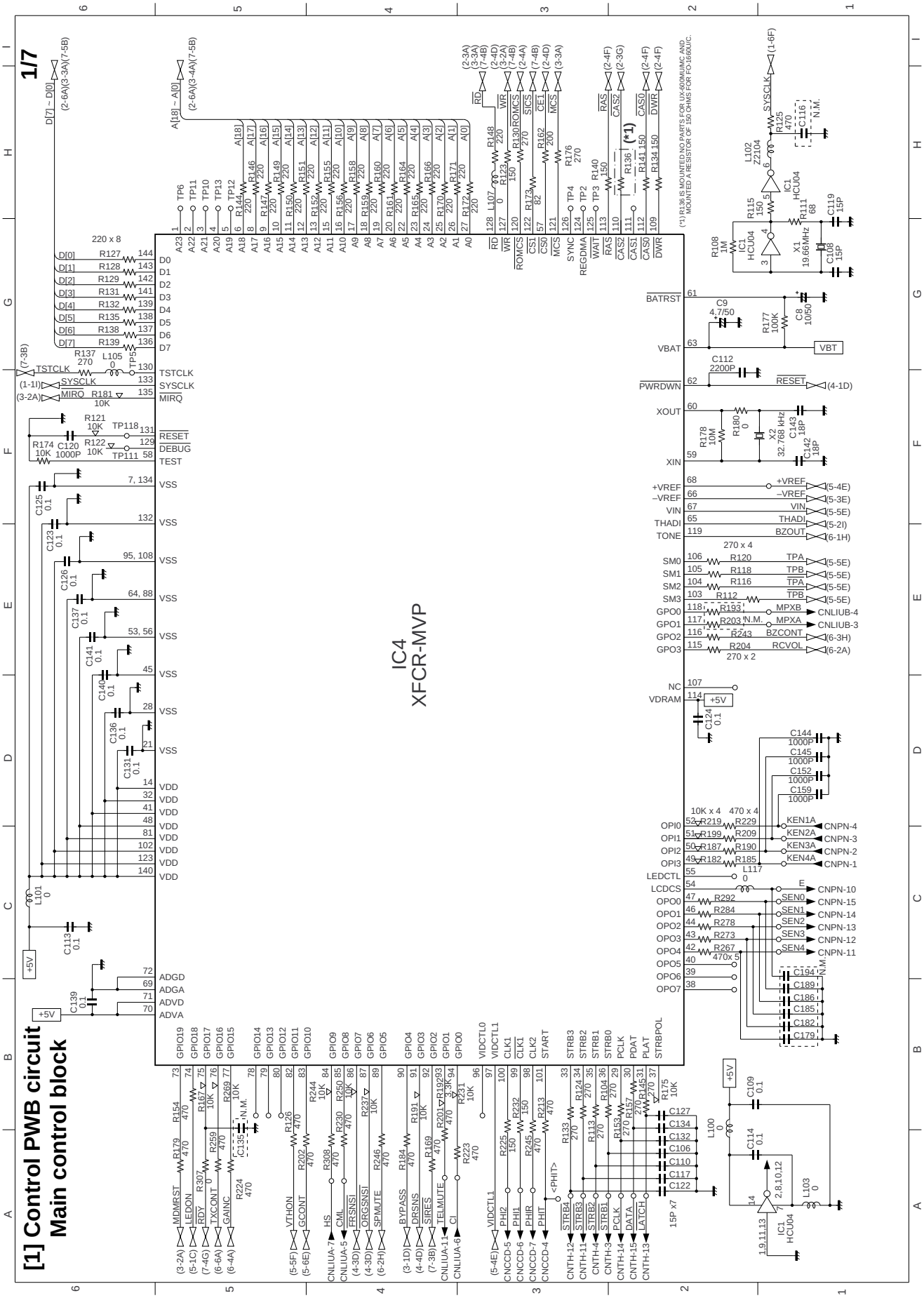
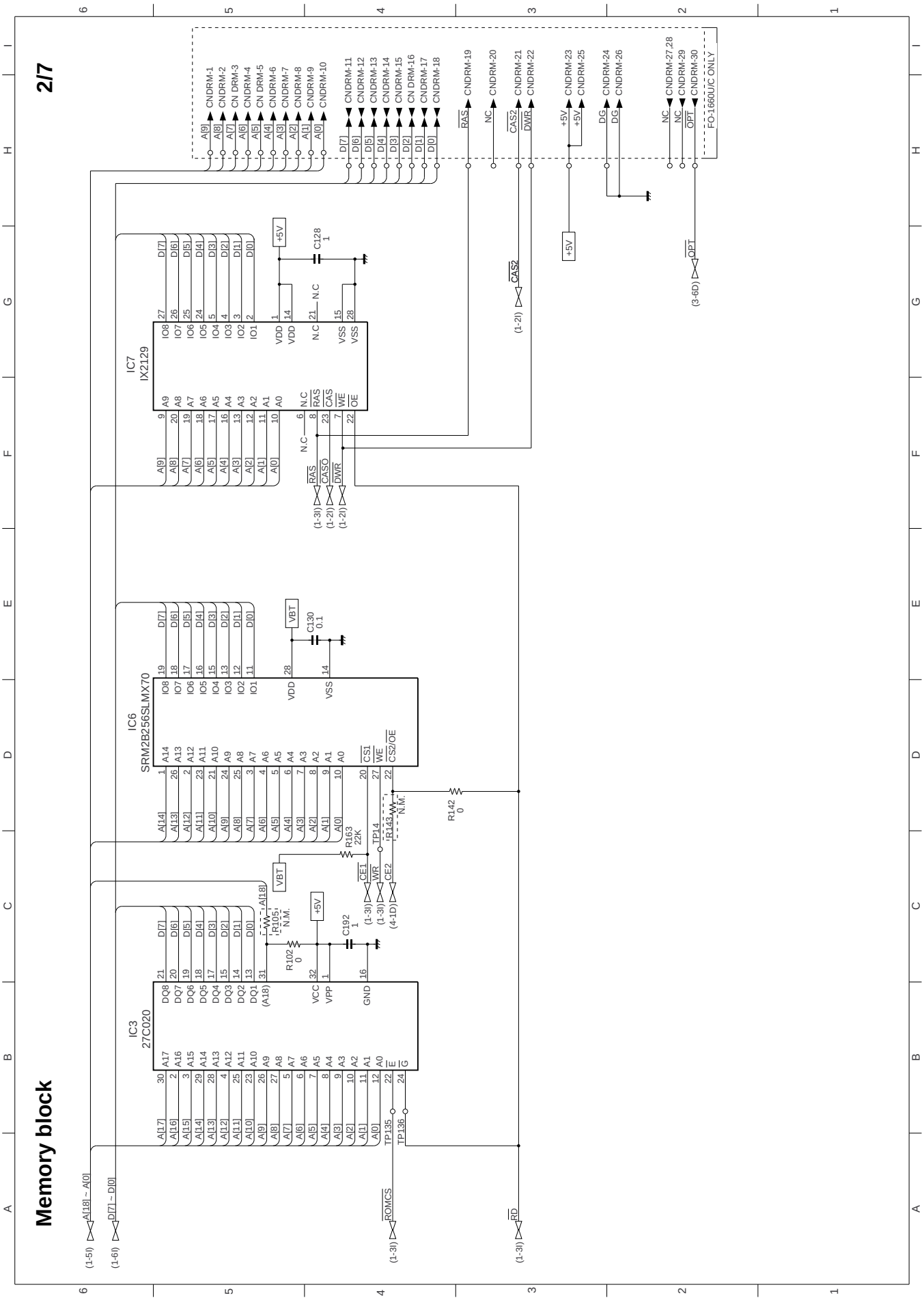
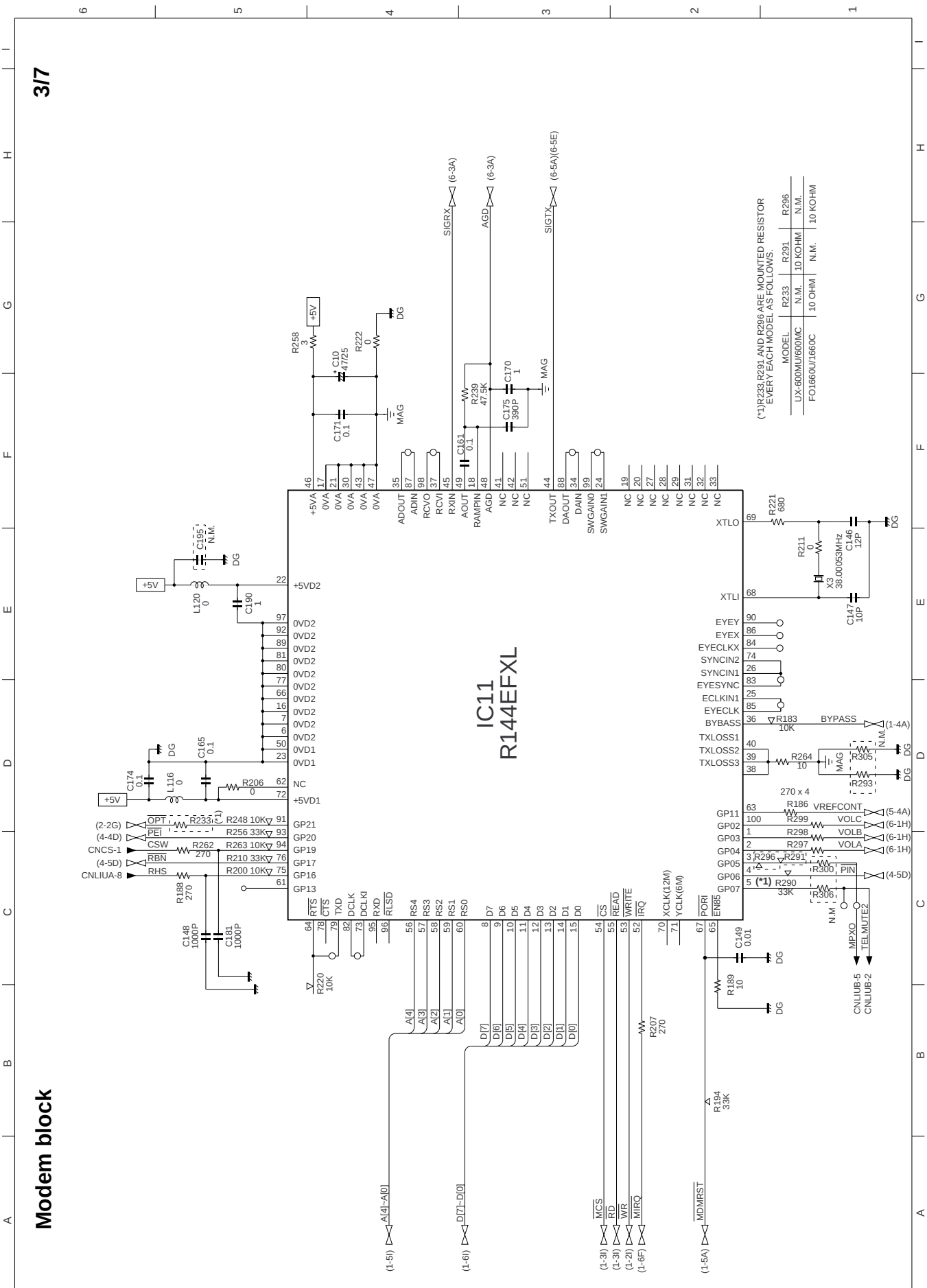


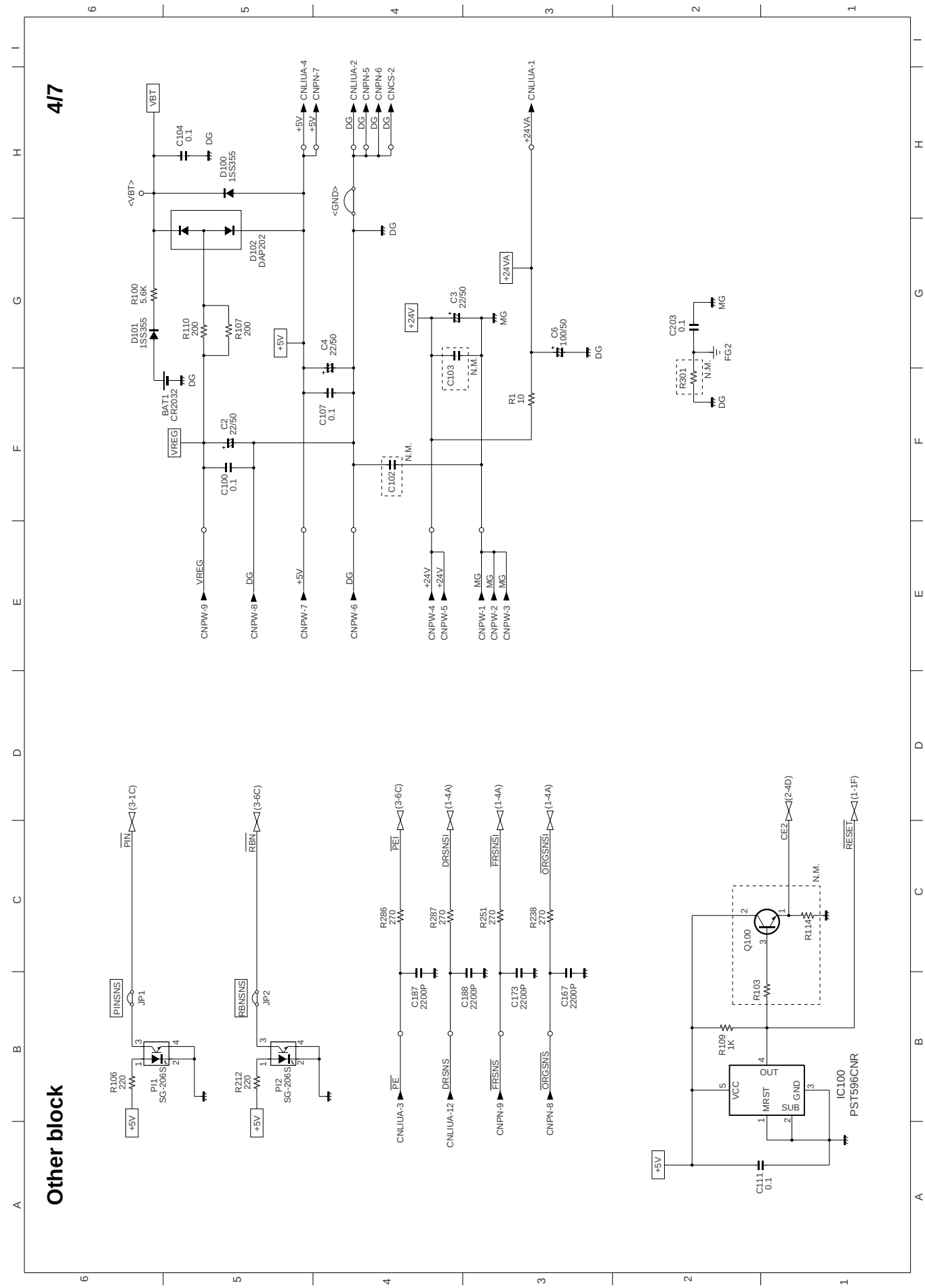
Fig. 10

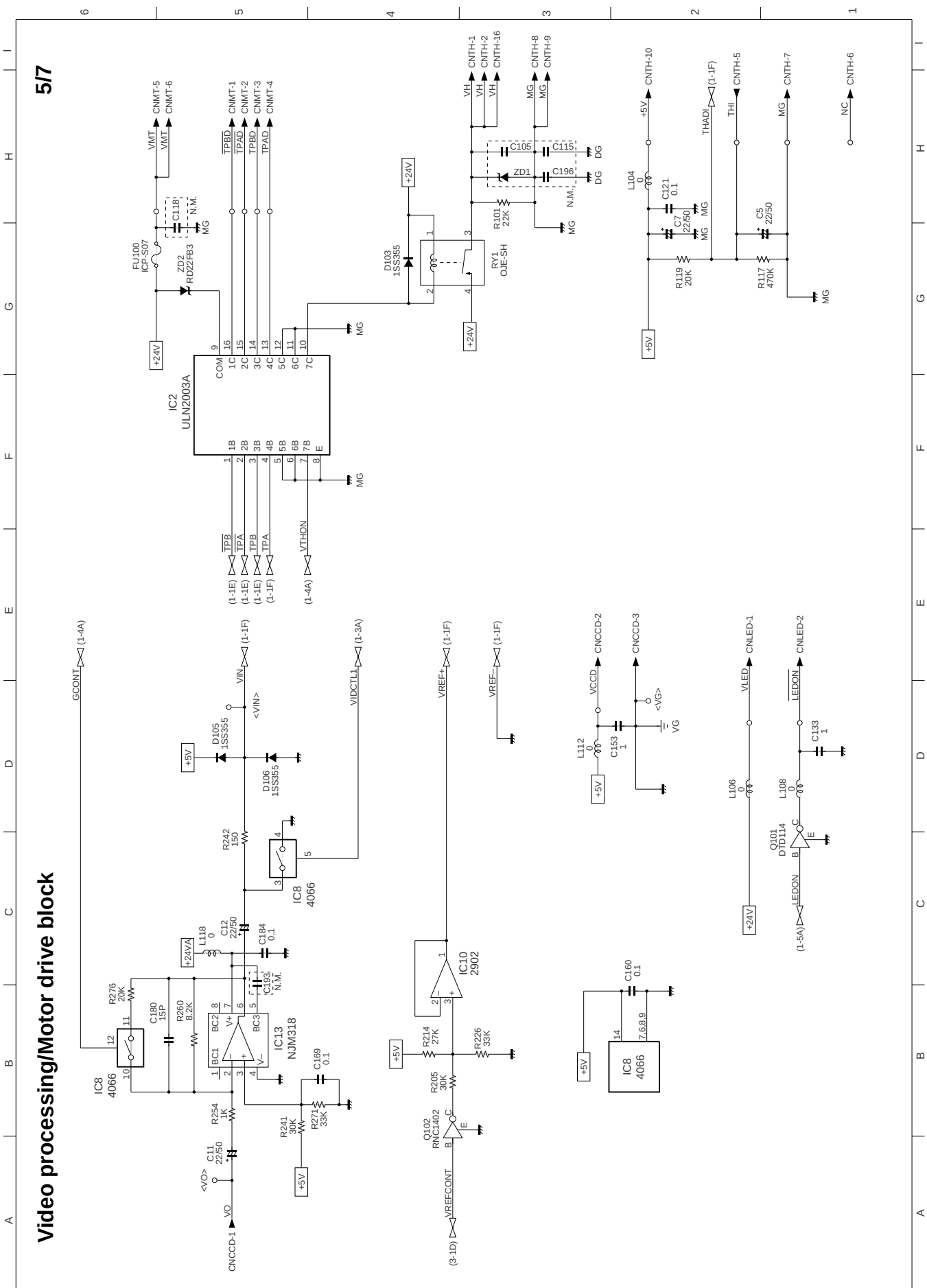
CHAPTER 6. CIRCUIT SCHEMATICS AND PARTS LAYOUT

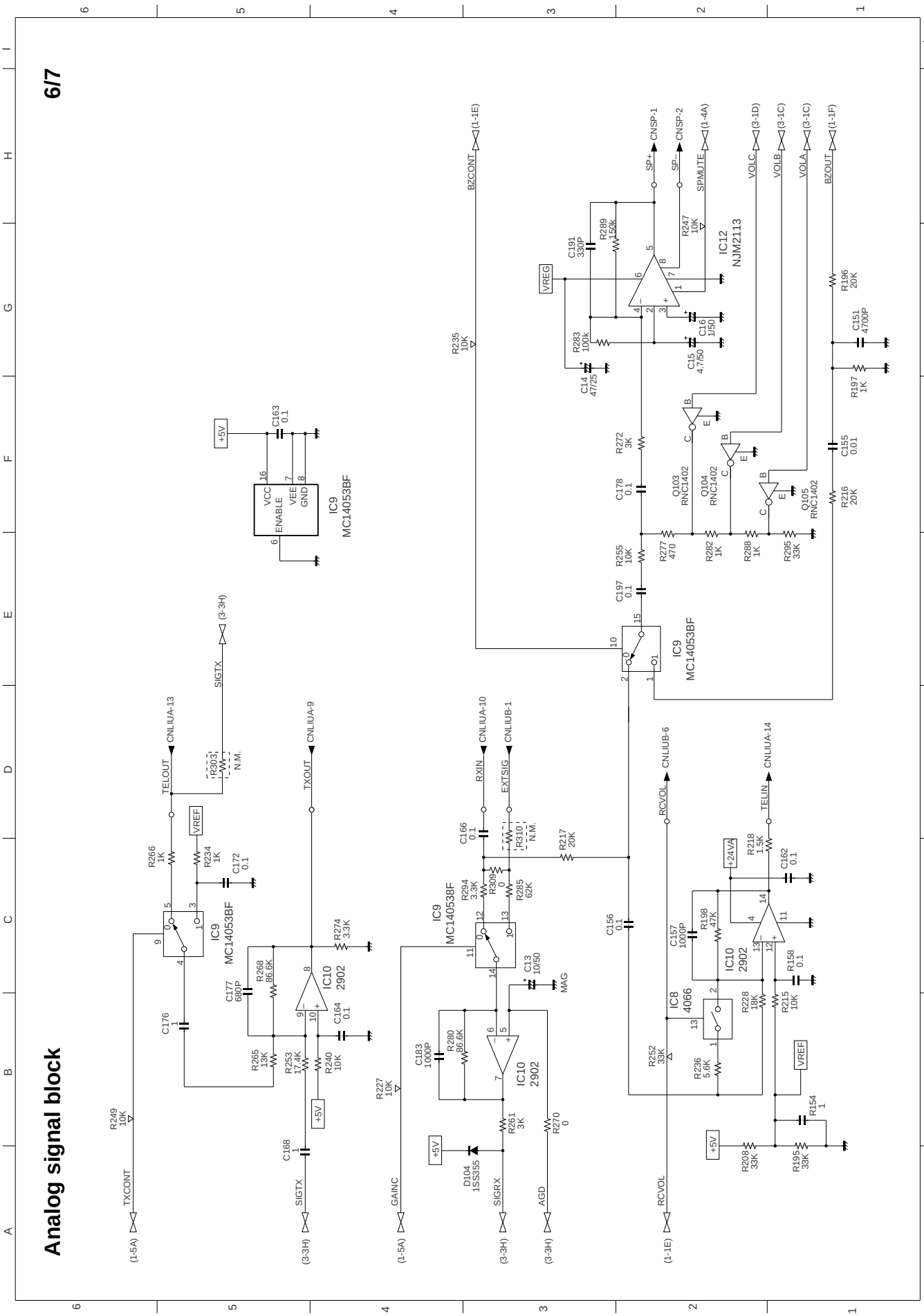



2/7
Memory block
IC3
27C020
IC6
SRM2B256SLMX70
IC7
IX2129
C128
1
C130
0.1
C192
1
R102
0
R142
0
R163
22K
R143
N.M.
R105
N.M.
TP14
TP135
TP136
VBT
+5V
CE1
CE2
WR
ROMCS
RD
RAS
CAS
DWR
CAS2
OPT
NC
DG
CNDRM-1
CNDRM-2
CN DRM-3
CNDRM-4
CN DRM-5
CNDRM-6
CNDRM-7
CNDRM-8
CNDRM-9
CNDRM-10
CNDRM-11
CNDRM-12
CNDRM-13
CNDRM-14
CNDRM-15
CN DRM-16
CNDRM-17
CNDRM-18
CNDRM-19
CNDRM-20
CNDRM-21
CNDRM-22
CNDRM-23
CNDRM-25
CNDRM-24
CNDRM-26
CNDRM-27,28
CNDRM-29
CNDRM-30
FO-1660U/C ONLY
A[18] ~ A[0]
D[7] ~ D[0]


3/7
Modem block
IC11
R144EFXL
(*1)R233,R291 AND R296 ARE MOUNTED RESISTOR EVERY EACH MODEL AS FOLLOWS.
MODEL | R233 | R291 | R296
UX-600MU/600MC | N.M. | 10 KOHM | N.M.
FO1660U/1660C | 10 OHM | N.M. | 10 KOHM
+5V
DG
MAG
SIGRX (6-3A)
AGD (6-3A)
SIGTX (6-5A)(6-5E)
XTLO
XTLI
X3 38.00053MHz
BYPASS (1-4A)
VREFCONT (5-4A)
VOLC (6-1H)
VOLB (6-1H)
VOLA (6-1H)
PIN (4-5D)
MPXO
TELMUTE2
CNLIUB-5
CNLIUB-2
OPT
PEI
CSW
RBN
RHS
(2-2G)
(4-4D)
CNCS-1
(4-5D)
CNLIUA-8
A[4]~A[0]
D[7]~D[0]
MCS
RD
WR
MIRQ
MDMRST
(1-5I)
(1-6I)
(1-3I)
(1-3I)
(1-2I)
(1-6F)
(1-5A)

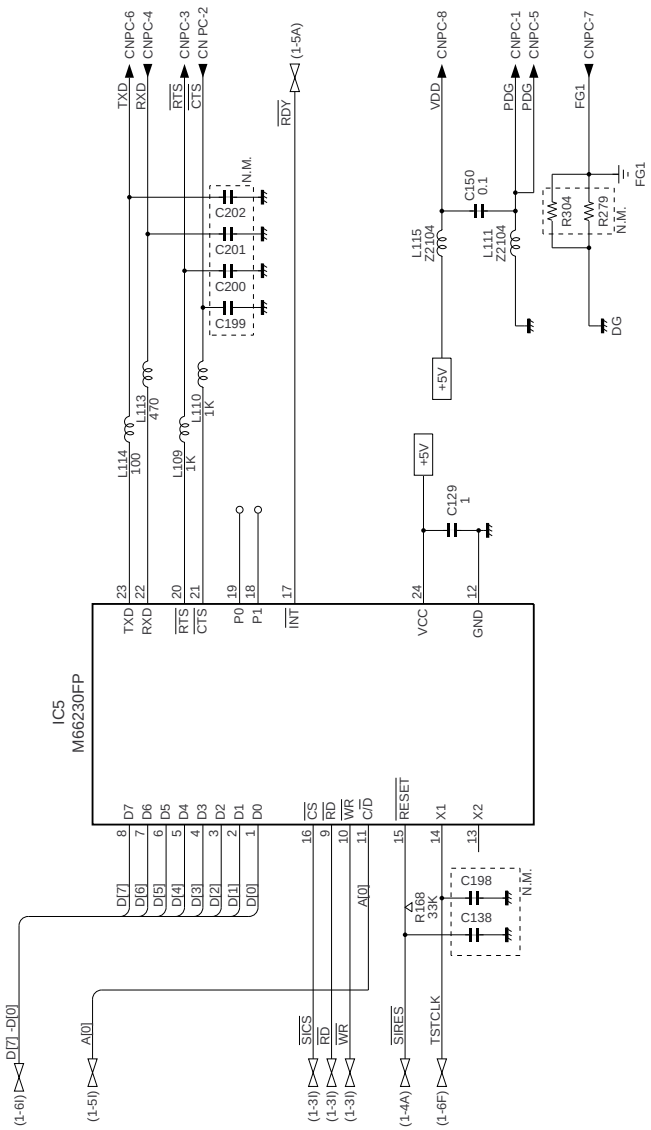

4/7
Other block
VBT
C104 0.1
DG
D100 1SS355
<VBT>
D102 DAP202
R100 5.6K
D101 1SS355
R110 200
R107 200
BAT1 CR2032
VREG
C2 22/50
C100 0.1
+5V
C4 22/50
C107 0.1
<GND>
C102 N.M.
+24V
C3 22/50
C103 N.M.
MG
+24VA
C6 100/50
R1 10
C203 0.1
R301
FG2
CNLIUA-4
CNPN-7
CNLIUA-2
CNPN-5
CNPN-6
CNCS-2
CNLIUA-1
CNPW-9
CNPW-8
CNPW-7
CNPW-6
CNPW-4
CNPW-5
CNPW-1
CNPW-2
CNPW-3
PINSNS
JP1
PIN
(3-1C)
PI1 SG-206S
R106 220
RBNSNS
JP2
RBN
(3-6C)
PI2 SG-206S
R212 220
R286 270
PEI
(3-6C)
C187 2200P
PE
CNLIUA-3
R287 270
DRSNSI
(1-4A)
C188 2200P
DRSNS
CNLIUA-12
R251 270
FRSNSI
(1-4A)
C173 2200P
FRSNS
CNPN-9
R238 270
ORGSNSI
(1-4A)
C167 2200P
ORGSNS
CNPN-8
CE2
(2-4D)
RESET
(1-1F)
Q100
R114
R103
R109 1K
IC100
PST596CNR
OUT
VCC
MRST
GND
SUB
C111 0.1


5/7
Video processing/Motor drive block
IC2
ULN2003A
IC8
4066
IC13
NJM318
IC10
2902
RY1
OJE-SH
ZD1
ZD2
RD22FB3
D103
1SS355
D105
1SS355
D106
1SS355
Q101
DTD114
Q102
RNC1402
FU100
ICP-S07
GCONT
VIN
VIDCTL1
VREF+
VREF-
VCCD
VG
VLED
LEDON
VMT
CNMT-5
CNMT-6
CNMT-1
CNMT-2
CNMT-3
CNMT-4
TPBD
TPAD
TPB
TPA
VTHON
VH
MG
CNTH-1
CNTH-2
CNTH-16
CNTH-8
CNTH-9
CNTH-10
CNTH-5
CNTH-7
CNTH-6
THADJ
THI
NC
CNCCD-1
CNCCD-2
CNCCD-3
CNLED-1
CNLED-2
VO
VREFCONT
+24V
+24VA
+5V
C105
C115
C196
C118
C193
C180
C184
C160
C169
C121
C7
C5
C133
C153
R101
R119
R117
R276
R260
R254
R241
R271
R242
R214
R226
R205
L104
L112
L106
L108
L118
(1-1E)
(1-1F)
(1-4A)
(1-3A)
(3-1D)
(1-5A)
N.M.

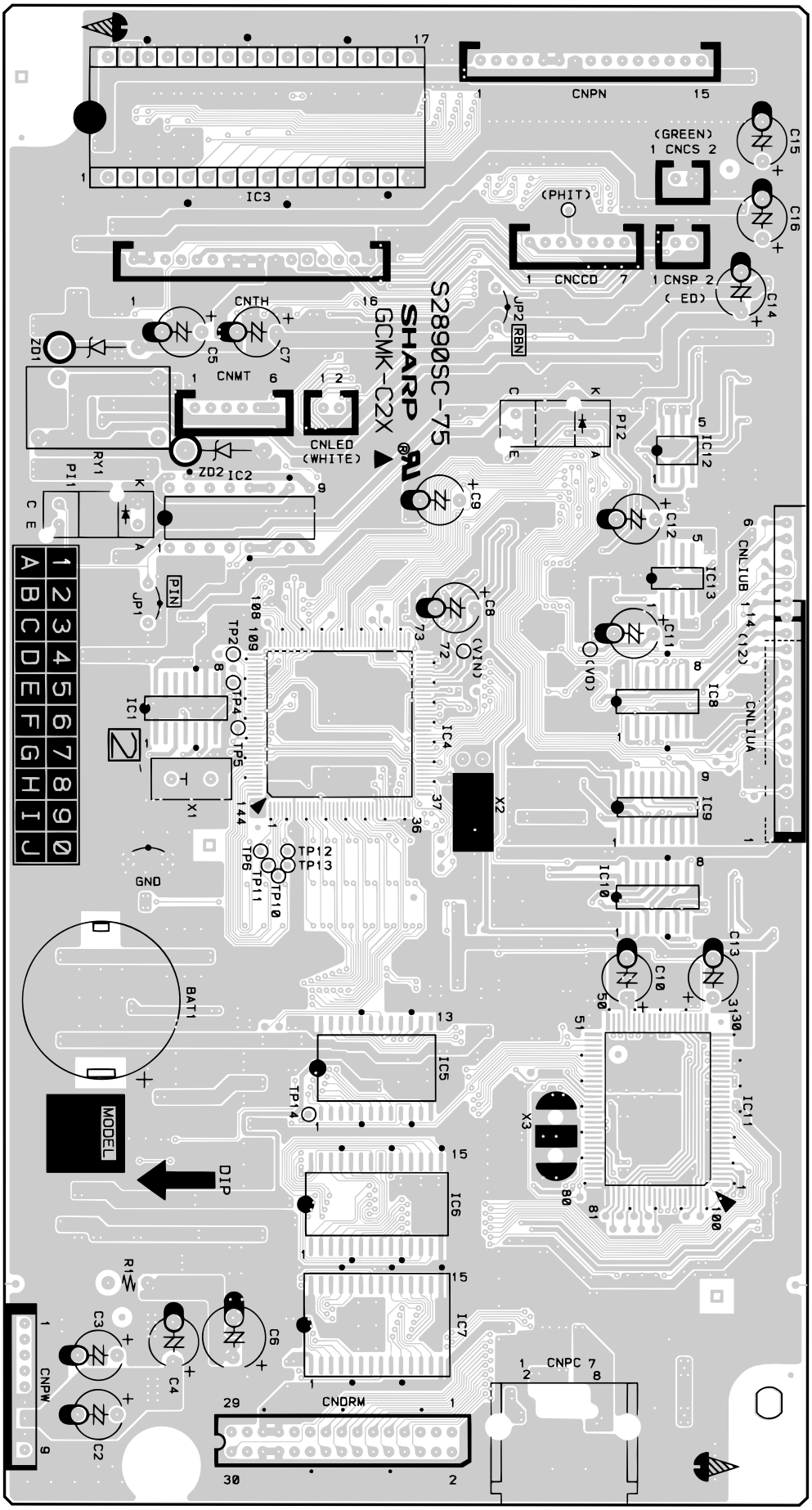

6/7
Analog signal block
IC9
MC14053BF
IC10
2902
IC8
4066
IC12
NJM2113
IC9
MC140538F
TXCONT
SIGTX
TELOUT
TXOUT
VREF
GAINC
SIGRX
AGD
MAG
RXIN
EXTSIG
RCVOL
TELIN
BZCONT
VREG
SP+
SP-
SPMUTE
VOLC
VOLB
VOLA
BZOUT
+5V
+24VA
N.M.

Multifunction interface block

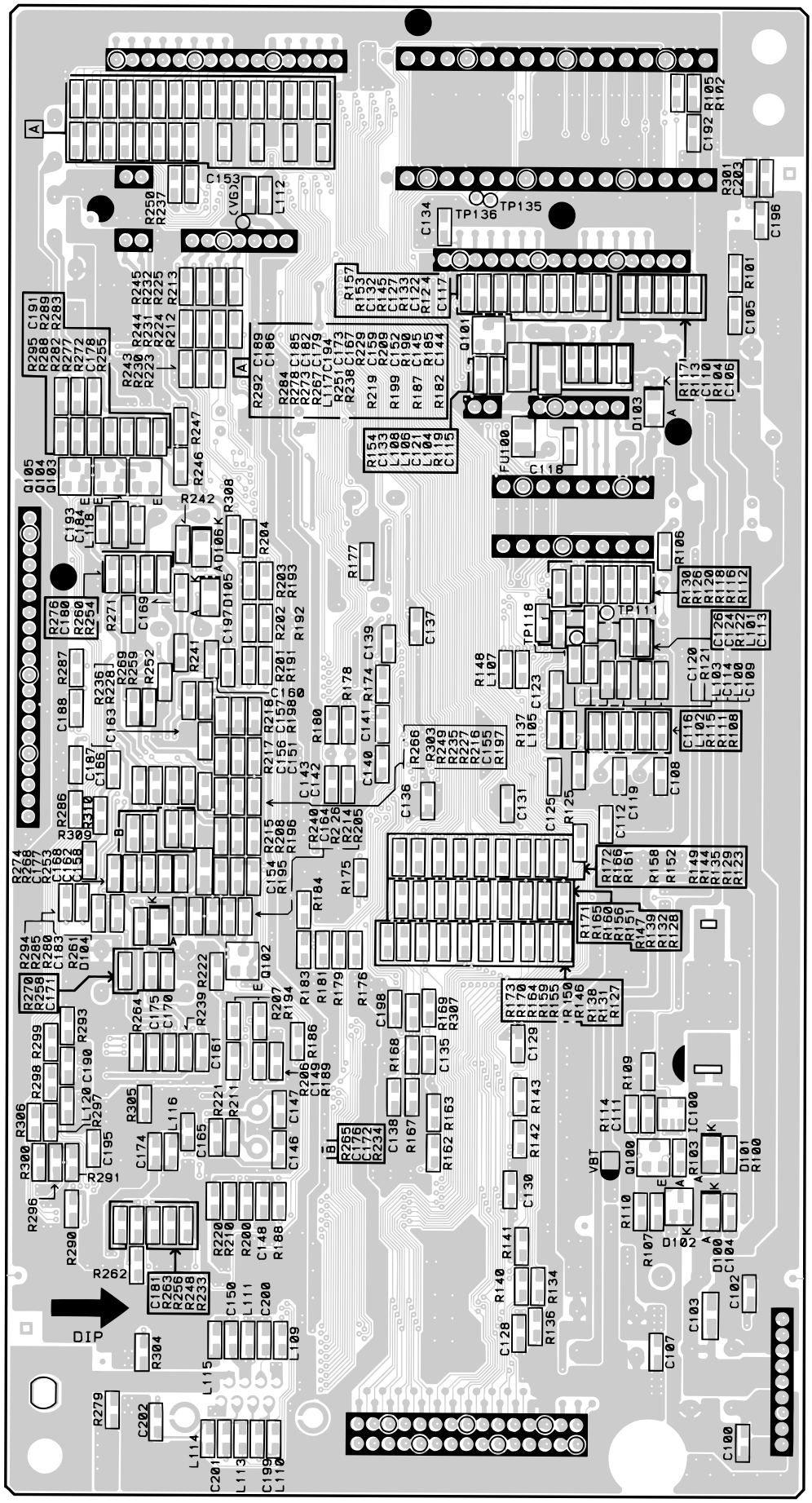
7/7



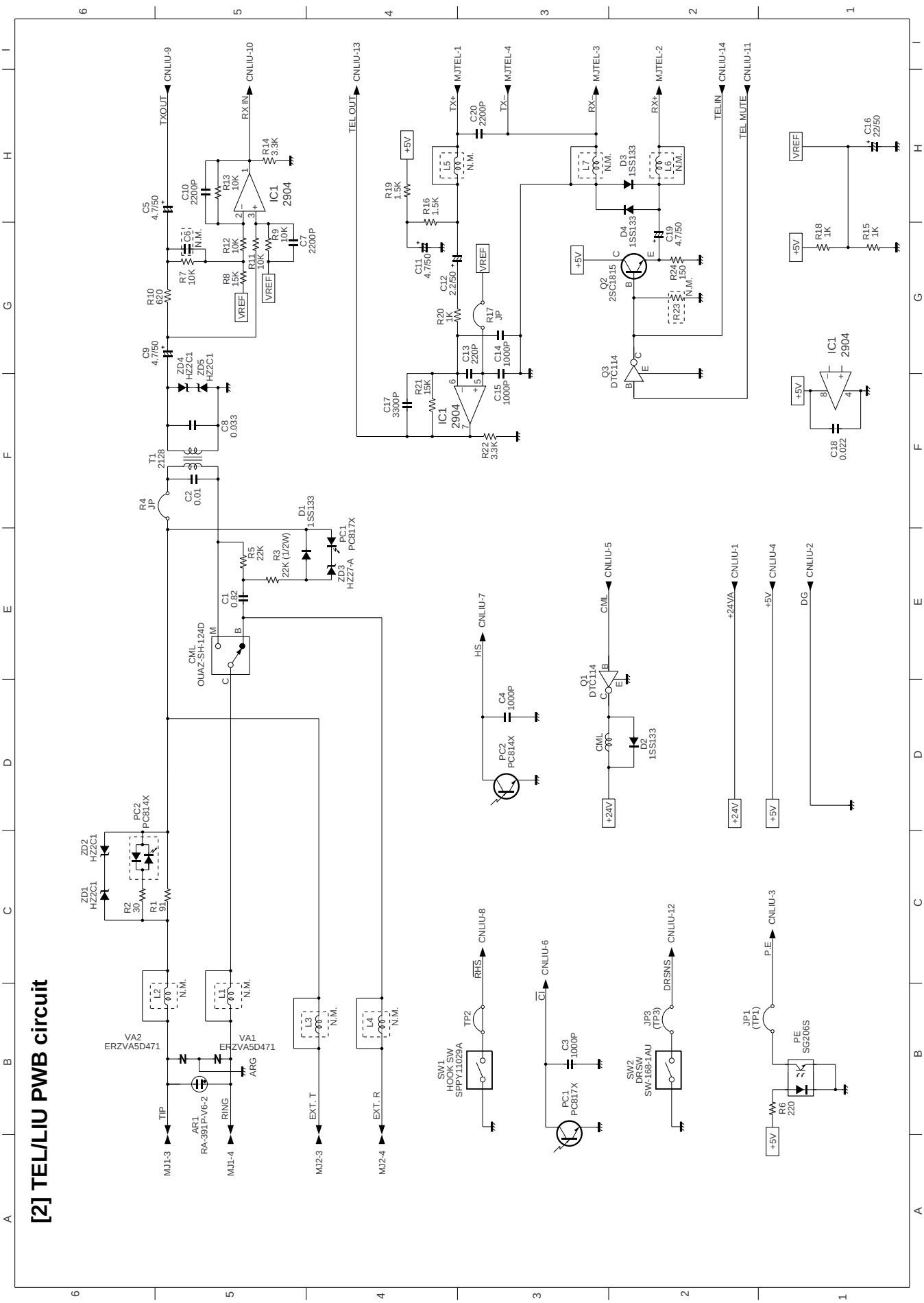
Control PWB parts layout
(Top side)



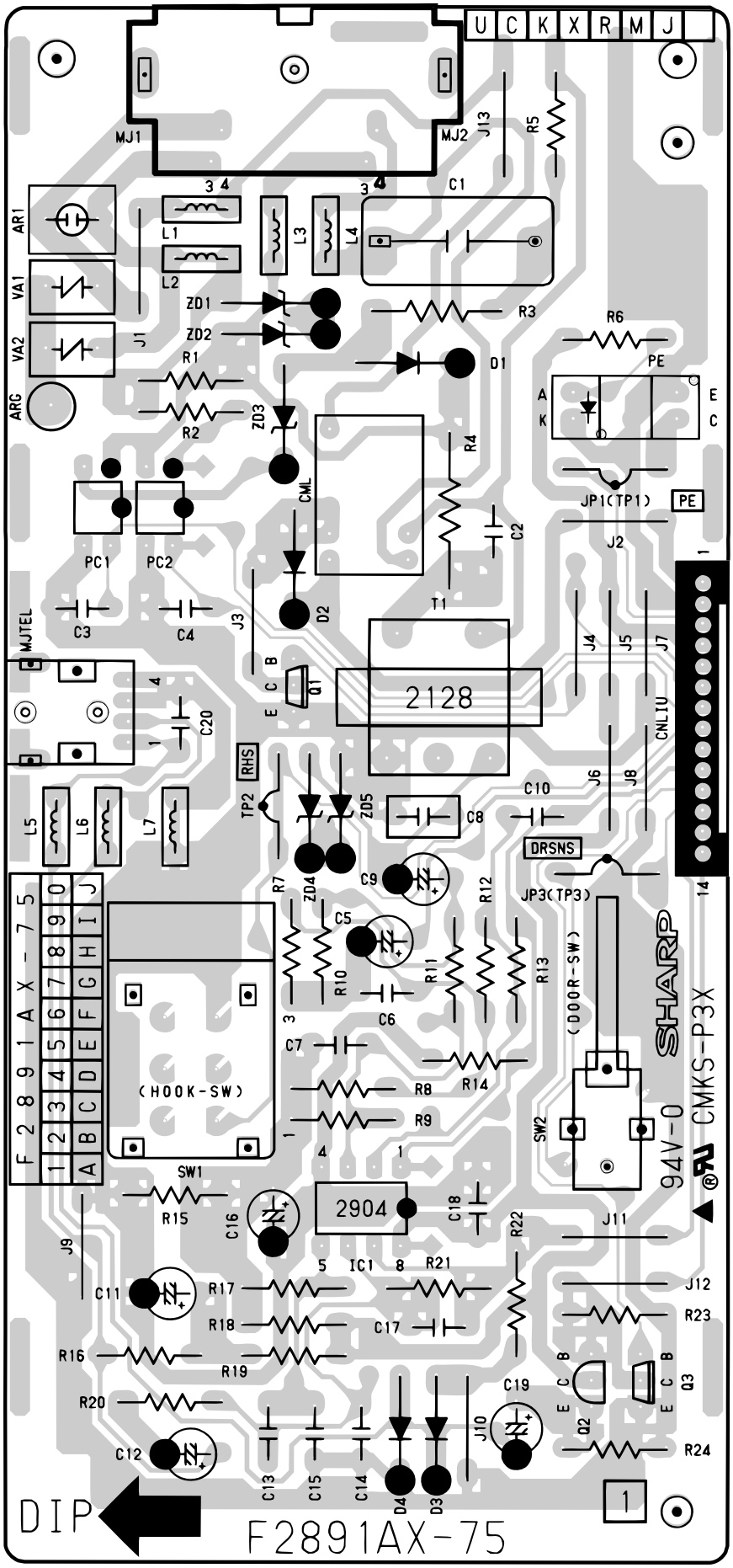
Control PWB parts layout
(Bottom side)



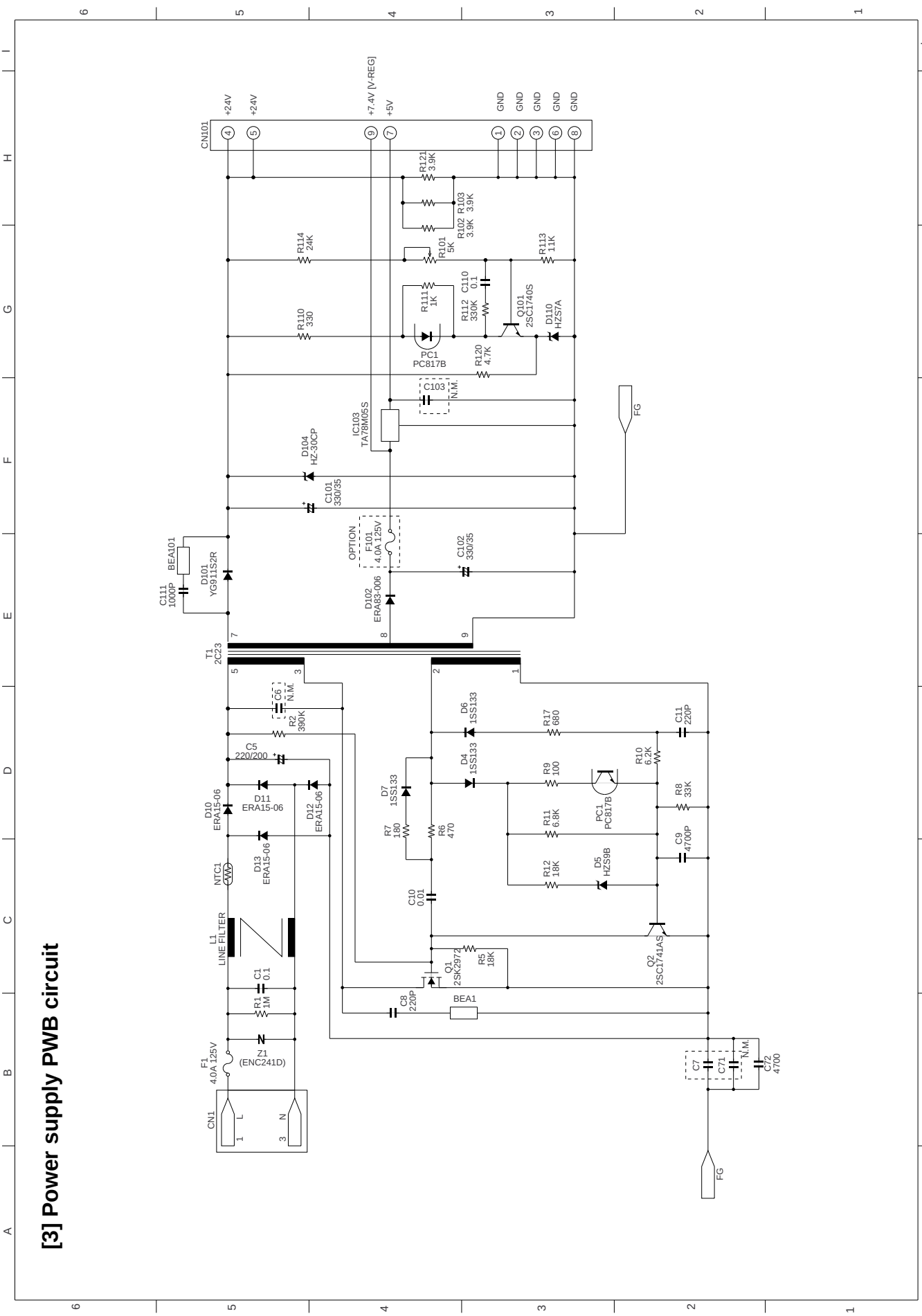
[2] TEL/LIU PWB circuit



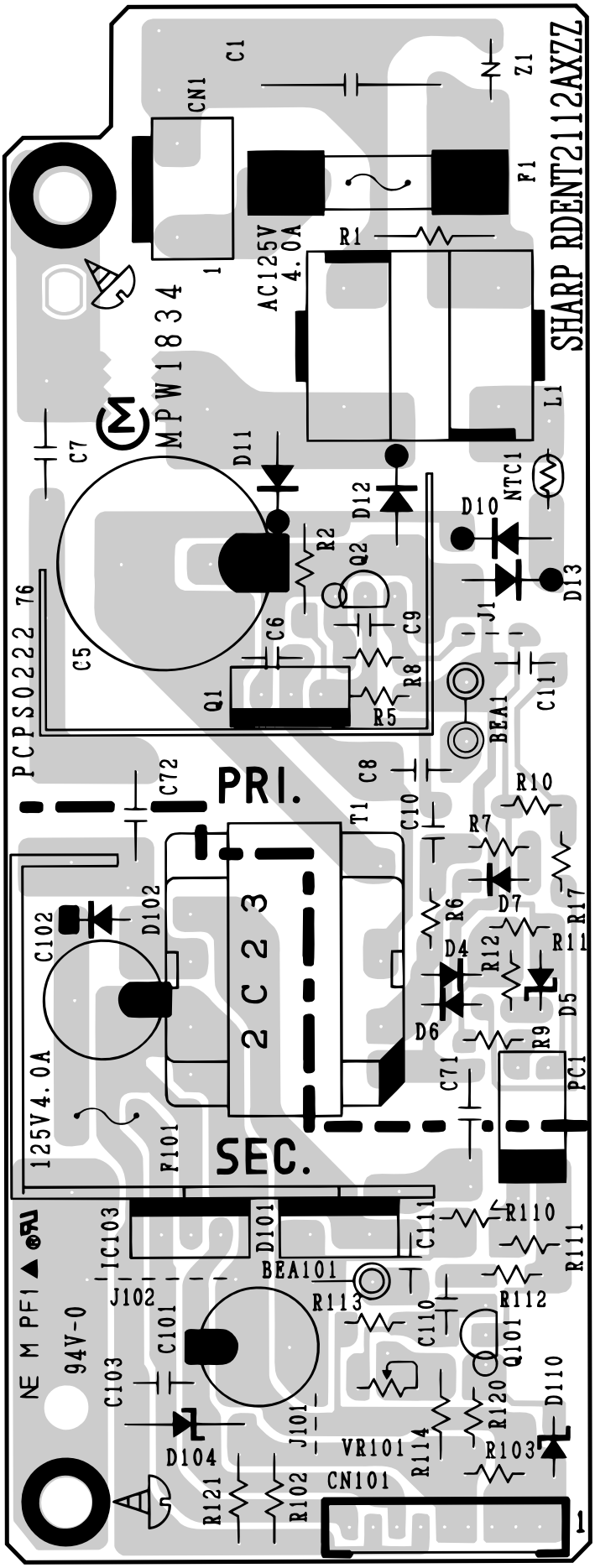
TEL/LIU PWB parts layout

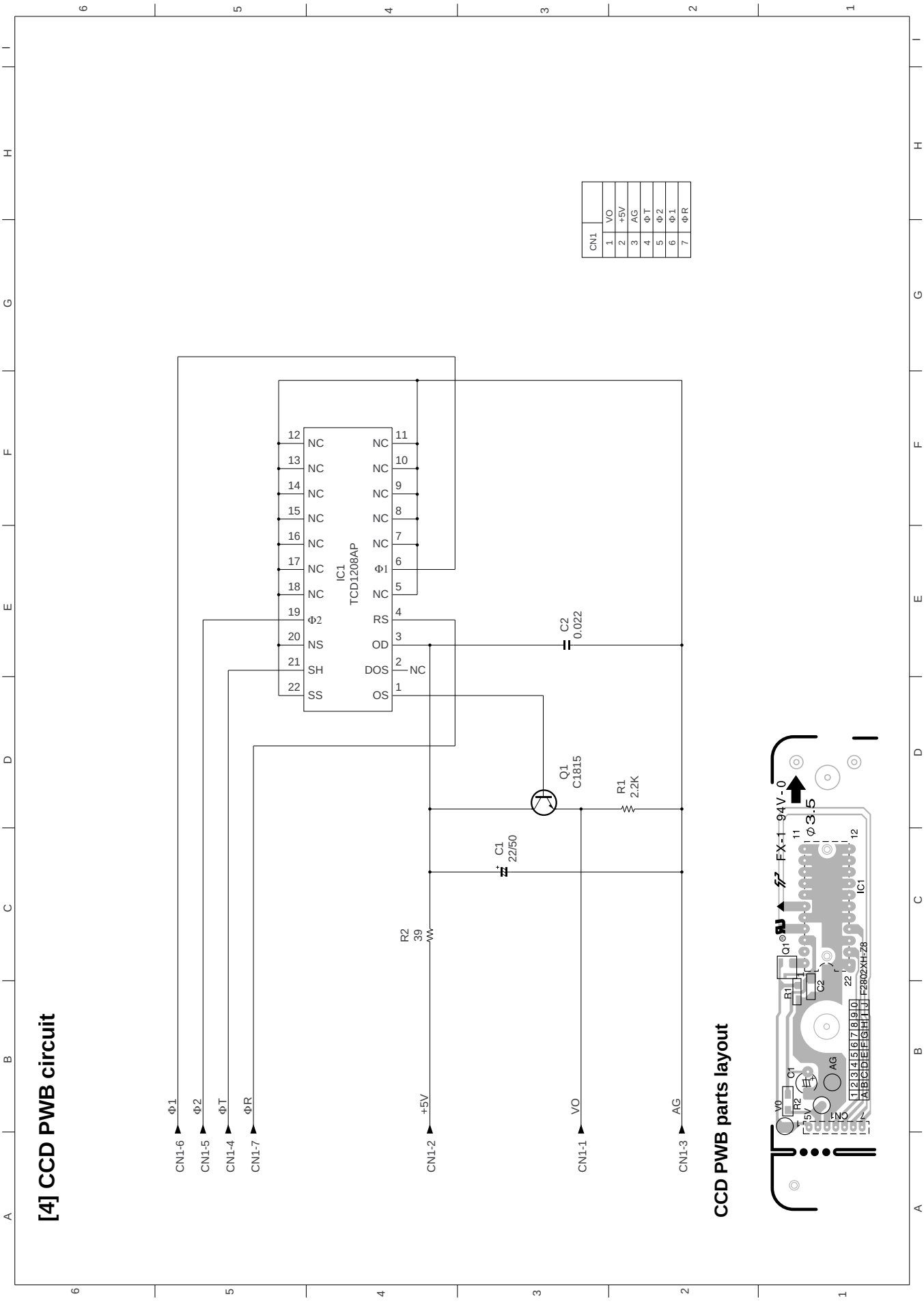


[3] Power supply PWB circuit

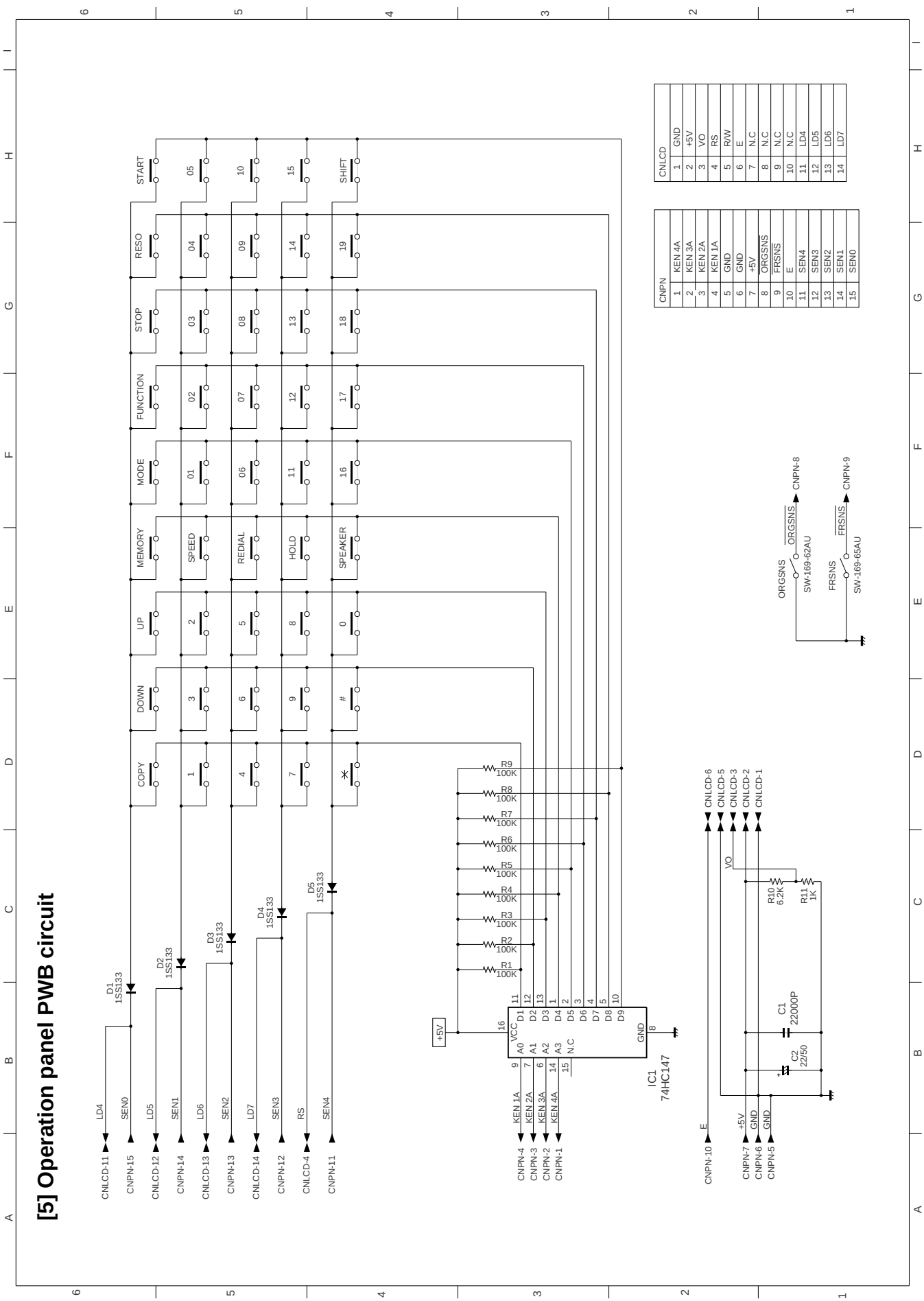


Power supply PWB parts layout

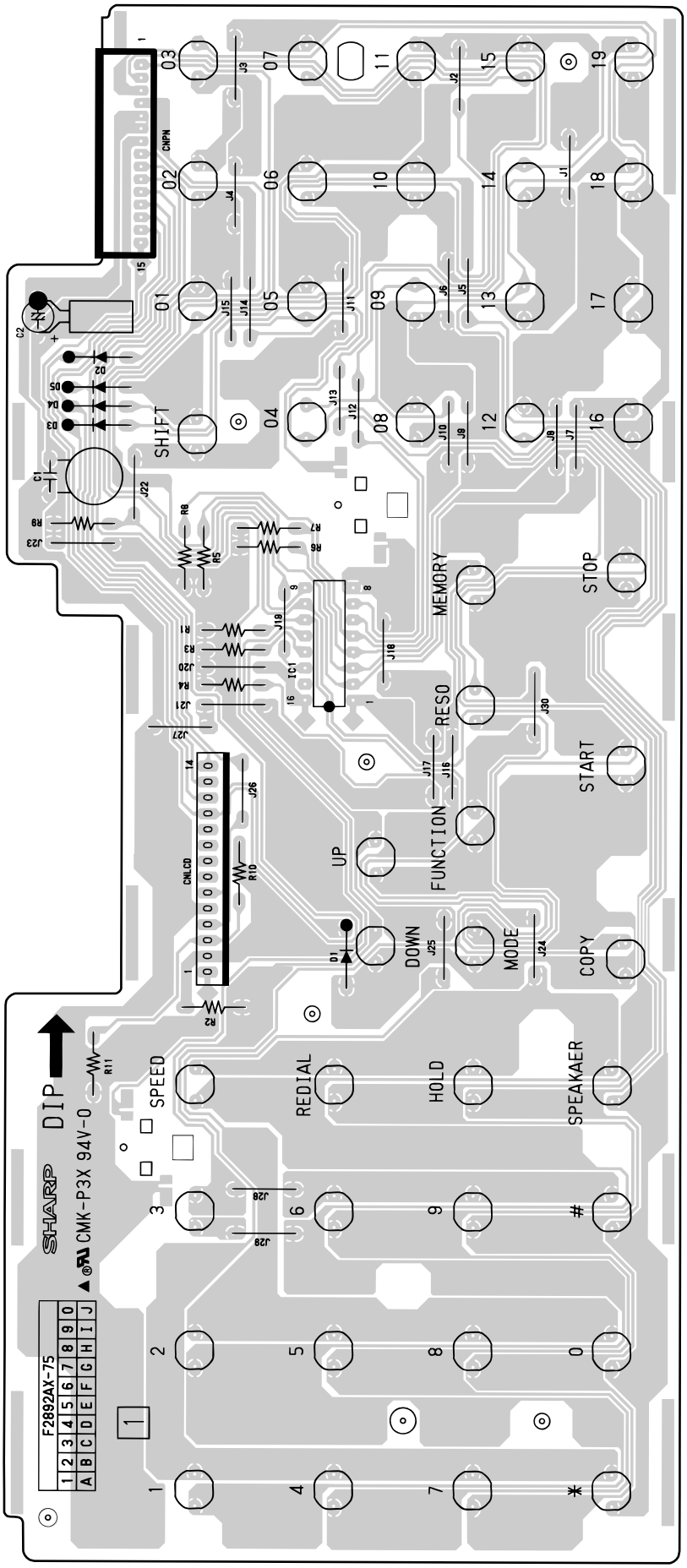



[4] CCD PWB circuit
CN1
VO
+5V
AG
ΦT
Φ2
Φ1
ΦR
IC1
TCD1208AP
NC
Φ1
Φ2
RS
OD
DOS
OS
NS
SH
SS
C1
22/50
C2
0.022
Q1
C1815
R1
2.2K
R2
39
CN1-6
CN1-5
CN1-4
CN1-7
CN1-2
CN1-1
CN1-3
CCD PWB parts layout
FX-1 94V-0
CN1
IC1
Q1
R1
R2
C1
C2
VO
+5V
AG
F2802XH-Z8

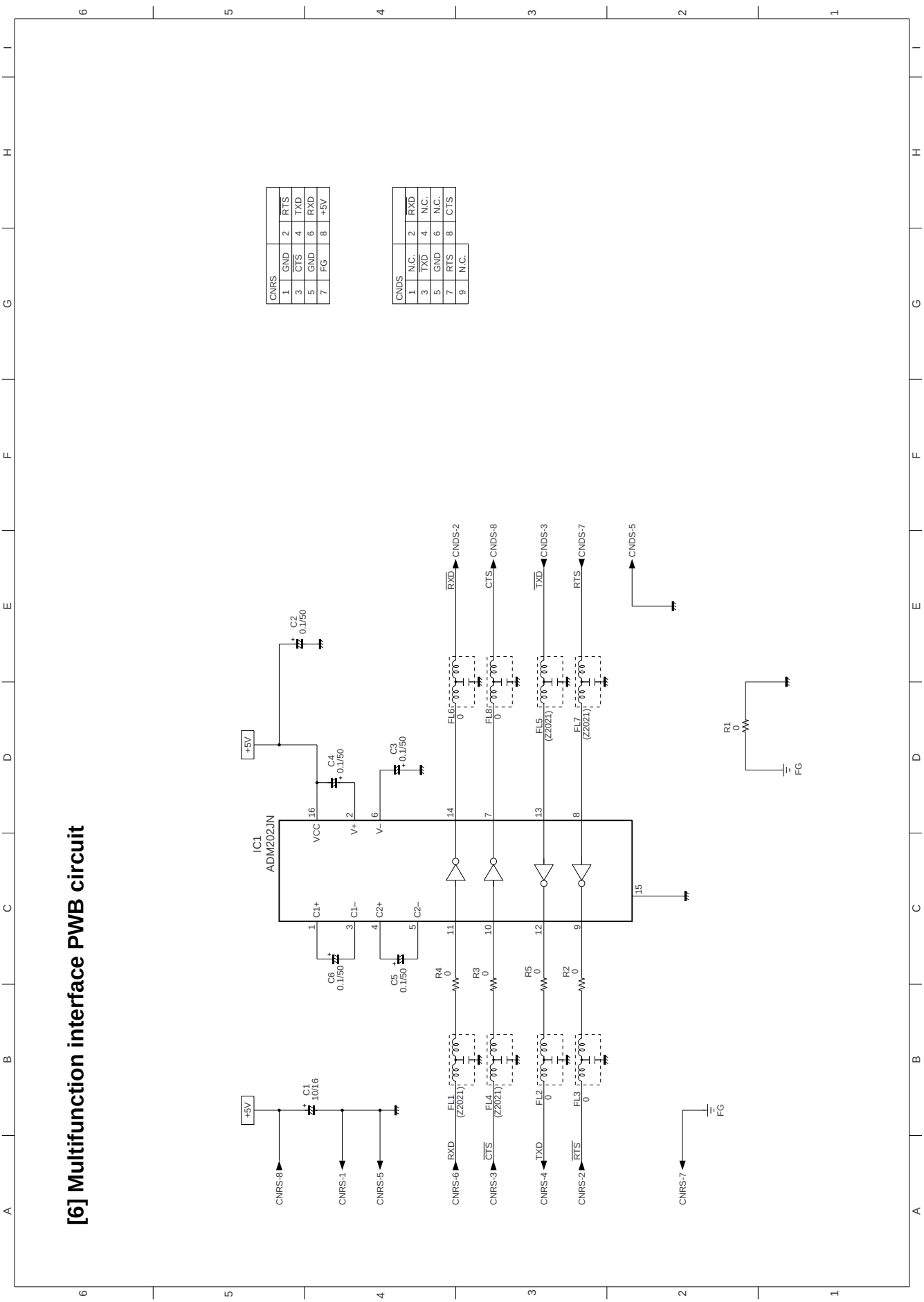
[5] Operation panel PWB circuit



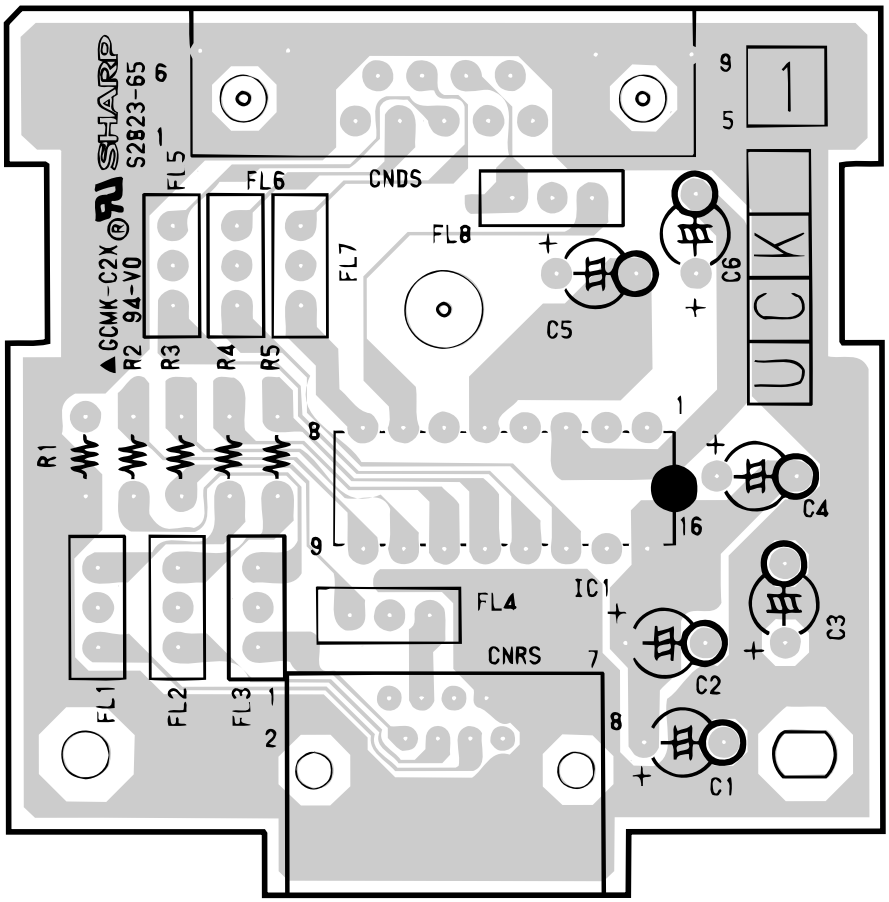
Operation panel PWB parts layout



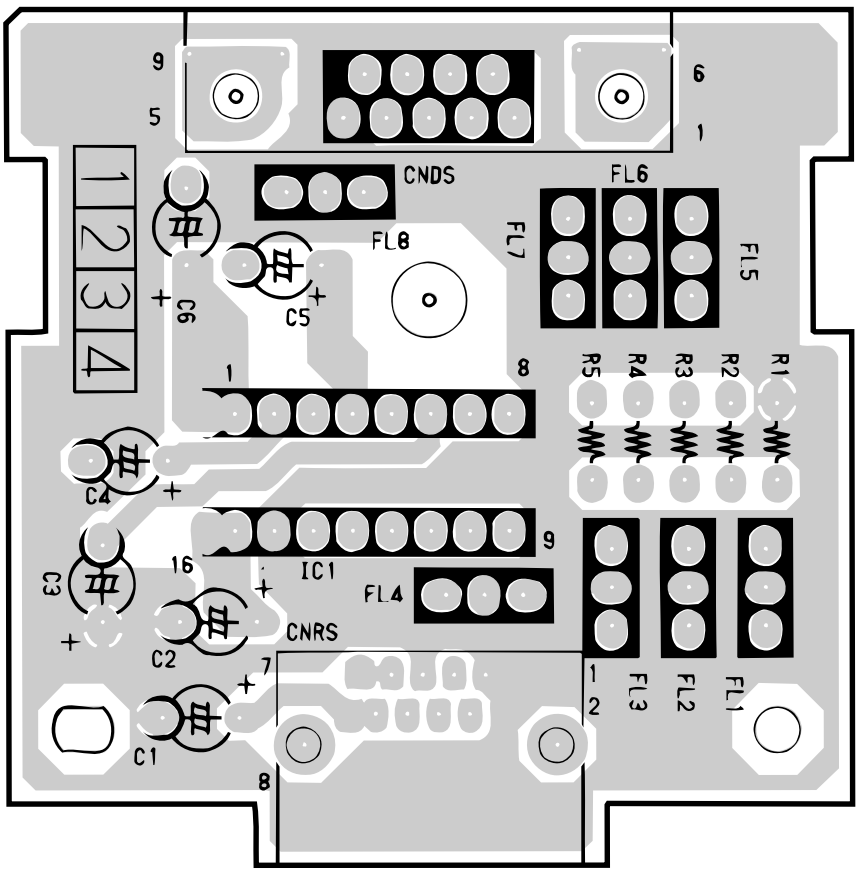
[6] Multifunction interface PWB circuit



Multifunction interface PWB parts layout (Top side)

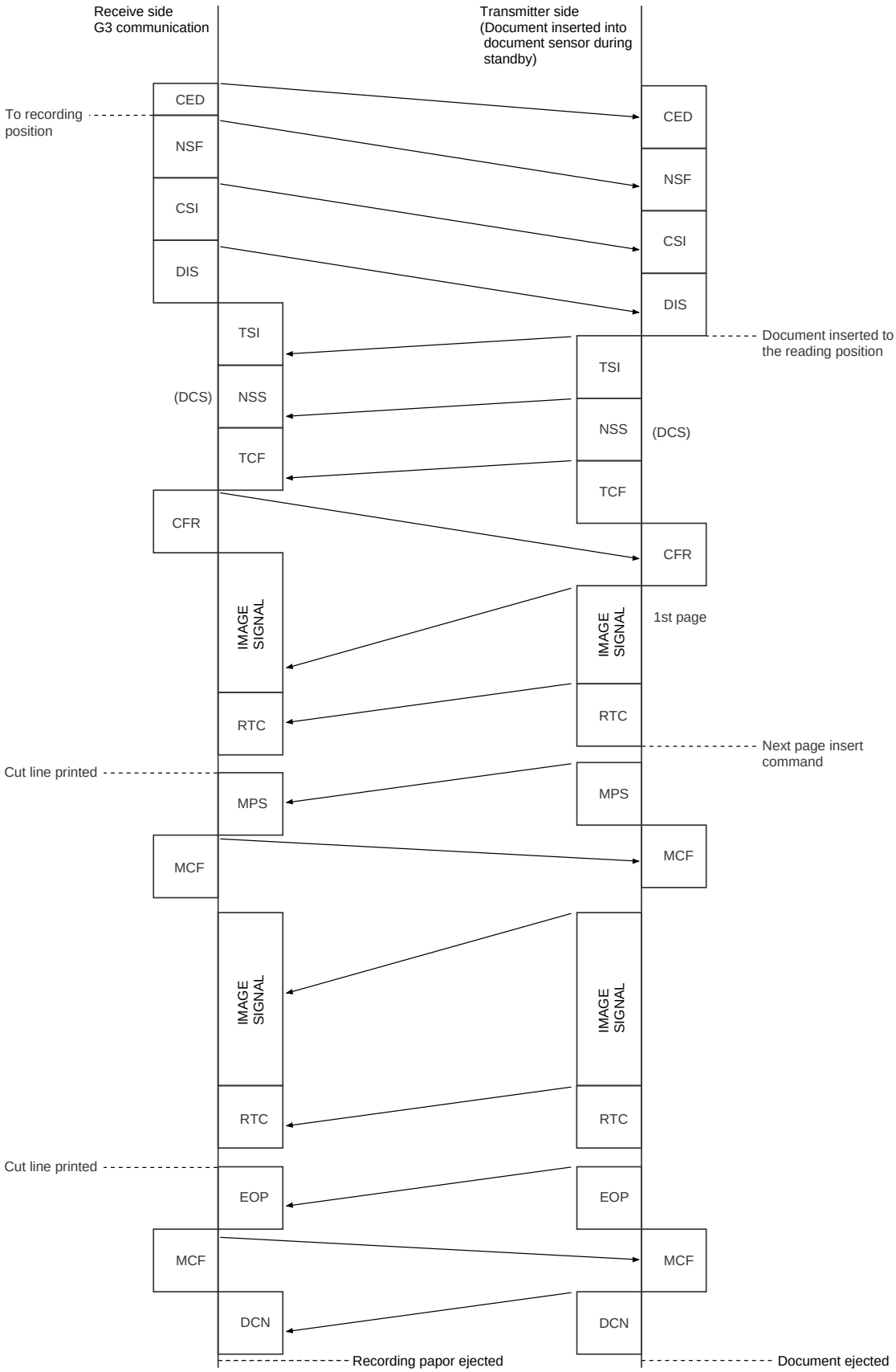


Multifunction interface PWB parts layout (Bottom side)

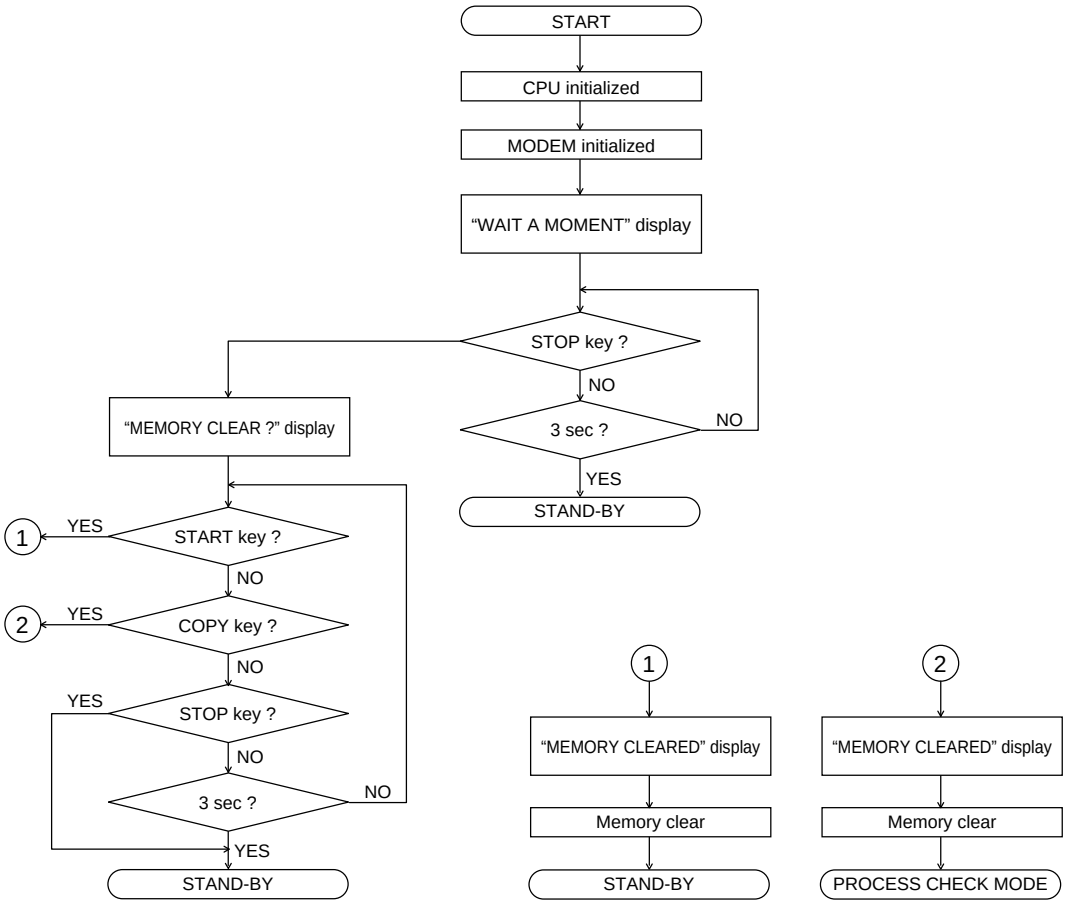


CHAPTER 7. OPERATION FLOWCHART

[1] Protocol



[2] Power on sequence



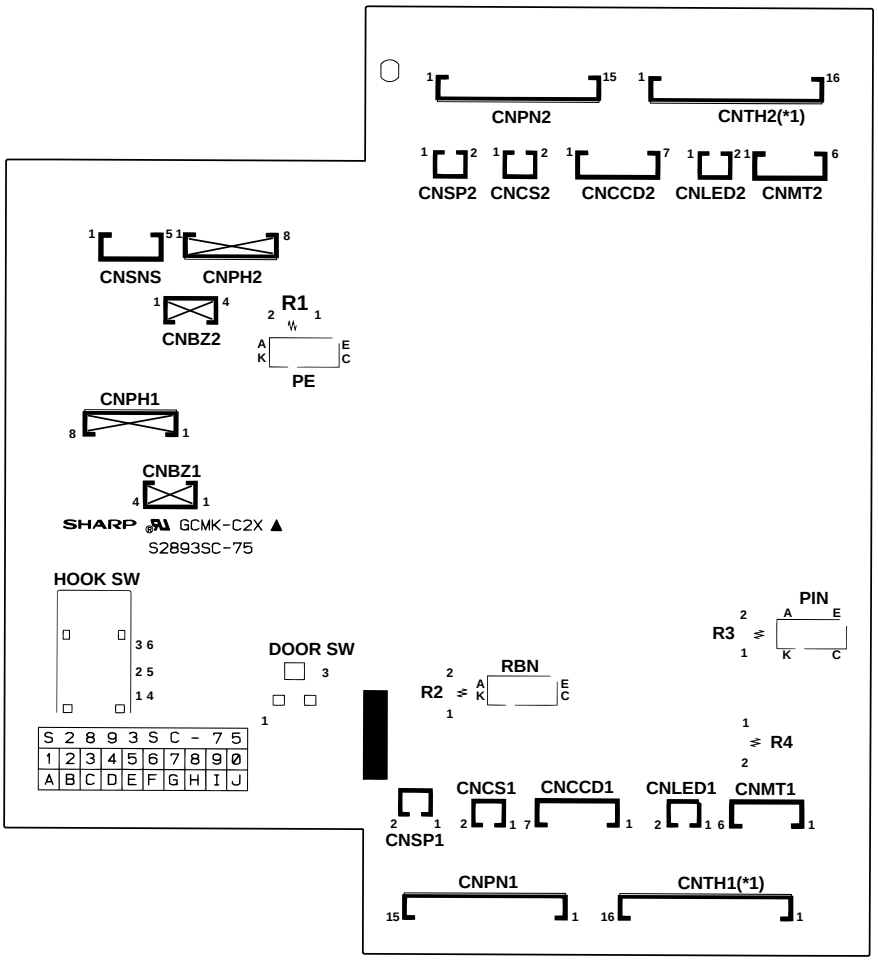
CHAPTER 8. OTHERS

[1] Service tools

1. List

NO.	PARTS CODE	DESCRIPTION	Q'TY	PRICE RANK
1	CPWBS2893SC01	Extension board unit	1	BZ
2	UKOGM2057SCZZ	Optical adjustment jig	1	BR

Extension board unit



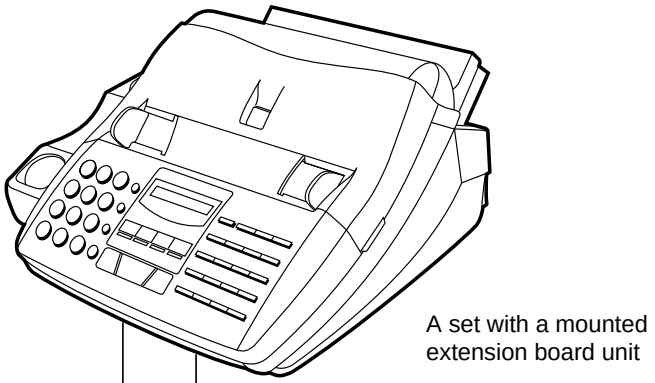
NOTE(*1): Mount connectors to CNTH1 and CNTH2 in the reverse direction against silk print of PWB.

NO.	PARTS CODE	DESCRIPTION	Q'TY	PRICE RANK
1	QCNW-4723SCZZ	CABLE [CNPN2]	1	AL
2	QCNW-4724SCZZ	CABLE [CNTH2]	1	AL
3	QCNW-4725SCZZ	CABLE [CNCCD2]	1	AH
4	QCNW-4726SCZZ	CABLE [CNMT2]	1	AH
5	QCNW-4727SCZZ	CABLE [CNLED2]	1	AF
6	QCNW-4728SCZZ	CABLE [CNSP2]	1	AF
7	QCNW-4729SCZZ	CABLE [CNCS2]	1	AF
8	QCNW-4730SCZZ	CABLE [CNSNS]	1	AH
9	QCNCM2401SC0B	CONNECTOR [CNSP1, CNSP2]	2	AA
10	QCNCM2442SC0B	CONNECTOR [CNCS1, CNCS2]	2	AB
11	QCNCM7014SC0B	CONNECTOR [CNLED1, CNLED2]	2	AD
12	QCNCM7014SC0E	CONNECTOR [CNSES]	1	AB
13	QCNCM7014SC0F	CONNECTOR [CNMT1, CNMT2]	2	AB
14	QCNCM7014SC0G	CONNECTOR [CNCCD1, CNCCD2]	2	AB
15	QCNCM7014SC1E	CONNECTOR [CNPN1, CNPN2]	2	AC
16	QCNCM7014SC1F	CONNECTOR [CNTH1, CNTH2]	2	AD
17	VHPSG206S//-1	PHOTO TRANSISTOR [P.E, RBN, PIN]	3	AG
18	VRD-RC2EY000J	RESISTOR (1/4W 0Ω ±5%)[R4]	1	AA
19	VRD-RC2EY221J	RESISTOR (1/4W 220Ω ±5%) [R1, R2, R3]	3	AA
20	QSW-Z2206SCZZ	HOOK SWITCH	1	AH
21	QSW-Z2226SCZZ	DOOR SWITCH	1	AG

2. Description

2-1. Extension board unit

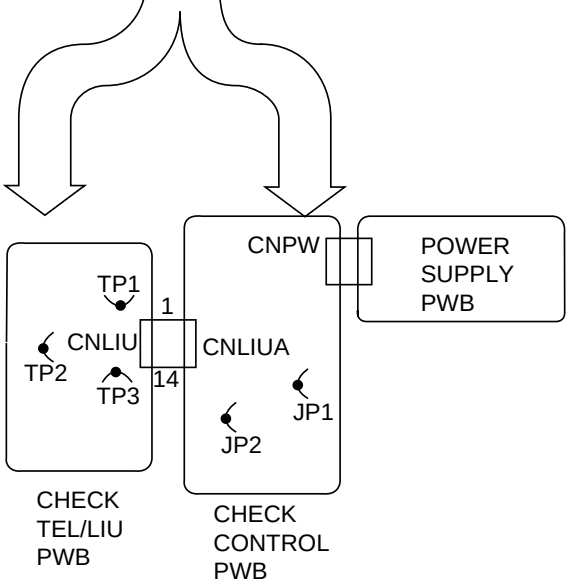
1. Remove the TEL/LIU PWB, control PWB and Power Supply PWB from this unit, and mount the extension board unit instead.
   - Before connecting the wiring to the extension board unit, set the test PWB switches to the fixed position.
2. The setting is as follows.



A set with a mounted extension board unit

Connector	Cable
CNPN2	QCNW-4723SCZZ
CNTH2	QCNW-4724SCZZ
CNCCD2	QCNW-4725SCZZ
CNMT2	QCNW-4726SCZZ
CNLED2	QCNW-4727SCZZ
CNSP2	QCNW-4728SCZZ
CNCS3	QCNW-4729SCZZ
CNSNS	QCNW-4730SCZZ

Cable color	CNSNS	Connected to (PWB)
1. Brown	RHS	TP2 (TEL/LIU)
2. Red	DRSNS	TP3 (TEL/LIU)
3. Orange	P.E	TP1 (TEL/LIU)
4. Yellow	RBN	JP2 (CONTROL)
5. Green	PIN	JP1 (CONTROL)



The recording paper sensor (P. E) and the hook switch are operated by OR of the mechanical unit switch and the test PWB switch. When performing installation in the machine unit, set the test PWB switches to the fixed position.

	Mechanical unit	PWB to be tested
	Actual operation with mechanical unit	
Recording paper sensor	ON/OFF operation	OFF (Photo interrupter is interrupted.)
Hook SW	ON/OFF operation	ON-HOOK
	PWB sensor check	
Recording paper sensor	OFF	ON/OFF operation
Hook SW	ON-HOOK	ON/OFF operation

* Recording paper: ON
No recording paper: OFF

2-2. Scan optical system adjustment

(1) Outline

The adjustment procedures of the scan optical system are described below:

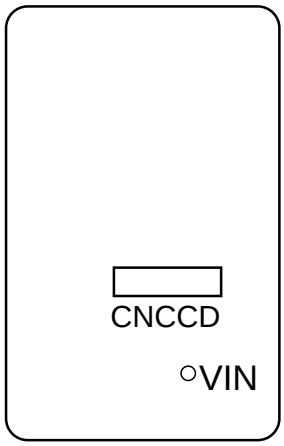
(2) Adjustment procedures

① Switch off the machine and disconnect the AC power cable from the wall socket.

② Fully open the upper cabinet, remove the fixing screws of the recording paper tray and remove the recording paper tray. In order to perform a focus adjustment, remove the optical system unit from the frame.

③ Disconnect the main PWB from the TEL/LIU PWB.

④ Connect your oscilloscope channel 1 to the VIN signal and channel 2 of your oscilloscope to ϕT signal (Refer Pin 4 of connector CNCCD on the main pwb). Connect the earth clips of either probe to AG ground as shown. Set the trigger to channel 2.



VO CNCCD-3 (CCD source output)
øT CNCCD-6 (Line sync signal)
VG CNCCD-5 (Ground)

⑤ Re-connect the main PWB to the TEL/LIU PWB and connect these circuit boards to the connectors on the chassis.

⑥ Re-assemble up to and including the recording paper tray to the main chassis and close upper cabinet.

⑦ Plug the AC power cable into the wall outlet and turn the fax machine on.

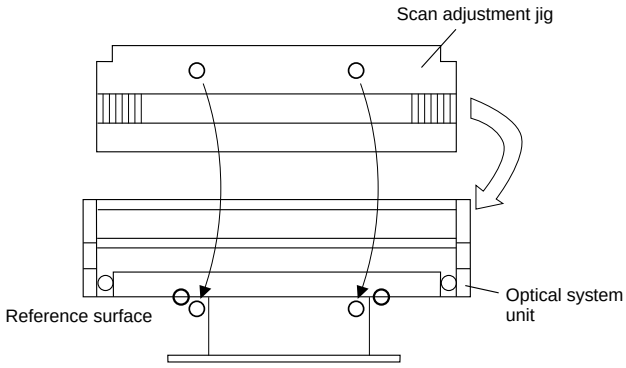
⑧ Insert a test chart in the document hopper and execute the CCD Adjust Mode diagnostic. Press the START key to enable local copy until approximately one fifth of the page has been copied, then press the STOP key to enable the CPU wait state.

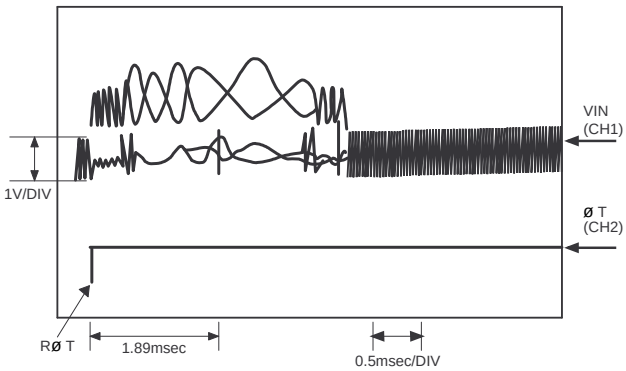
⑨ Fully open the upper cabinet and remove the recording paper tray.

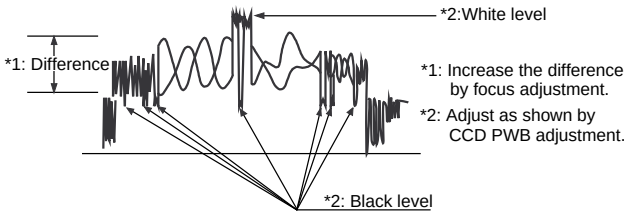
⑩ Install the scan adjustment jig to the optical system unit, so that the pattern surface is on the lower side.

⑪ Fit the pins of the scan adjustment jig to the holes of the optical system frame.

⑫ Lightly loosen the red screws of the CCD PWB and obtain the VID signal waveform in synchronization with ϕT signal waveform. Adjust the CCD PWB positioning to obtain the waveform as shown below.






*2:White level
*1: Difference
*1: Increase the difference by focus adjustment.
*2: Adjust as shown by CCD PWB adjustment.
*2: Black level

[CCD waveform model]

CCD waveform

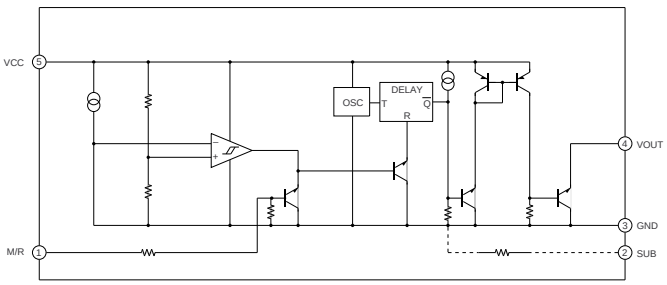
⑬ After completing the CCD adjustment, tighten the two red screws on the CCD pwb and apply screw locking material to prevent the CCD pwb from moving.

⑭ Assemble the recording paper tray and fixing screws.

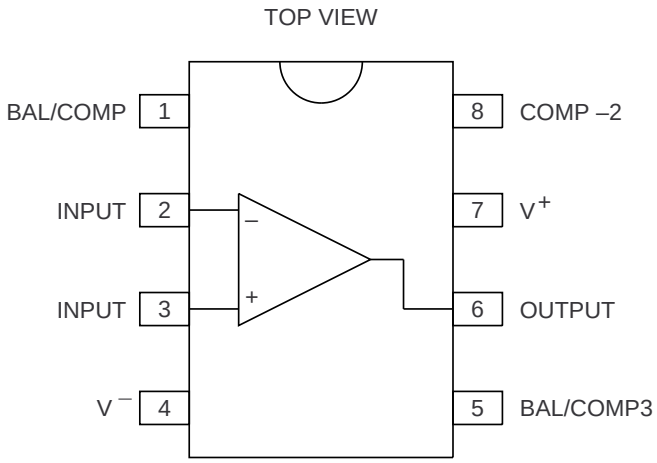
[2] IC signal name

CONTROL PWB UNIT

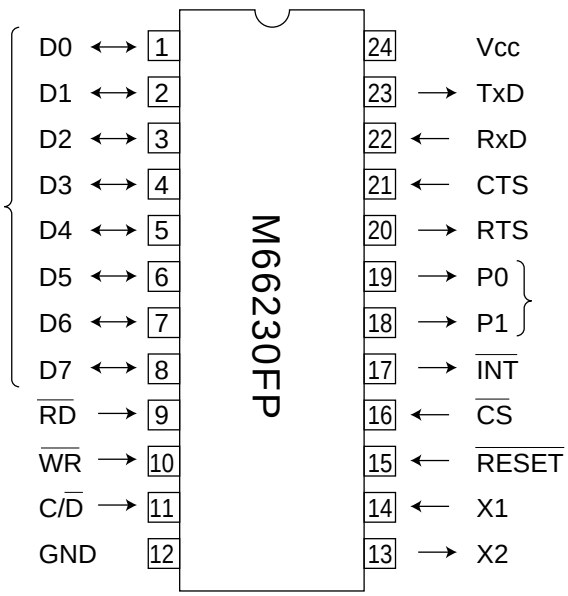
IC100: VHiPST596CMT1 (PST596CNR)



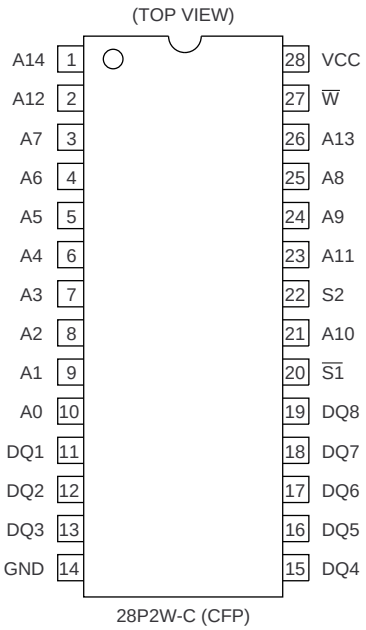
IC13: VHiNJM318M/-F (NJM318M)



IC5: VHiM66230FP-1 (M66230FP)

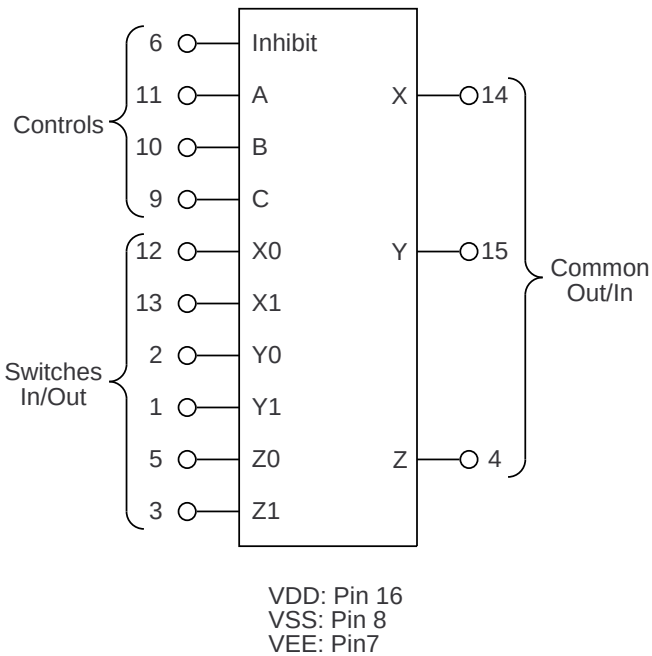


IC6: VHiS2B256SL70 (SRM2B256SLMX70)



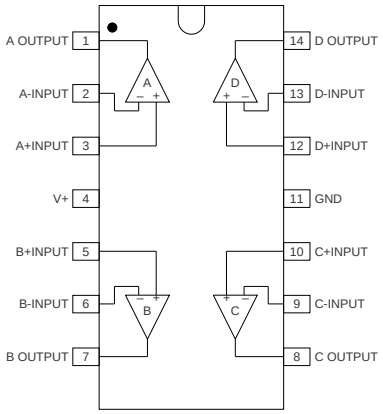
Pin name	Signal
A0~A12	Address input
CE1/CE2	Chip enable
WE	Write enable
OE	Write enable
I/O1~I/O8	Data I/O
VCC	Power source
GND	Ground
N.C.	No connection

IC9: VHiMC14053DR2 (MC14053DR2)

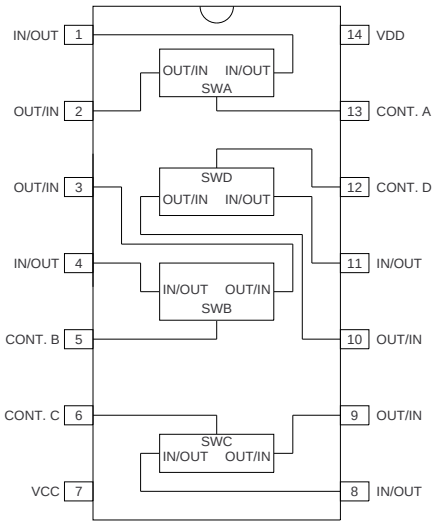


VDD: Pin 16
VSS: Pin 8
VEE: Pin7

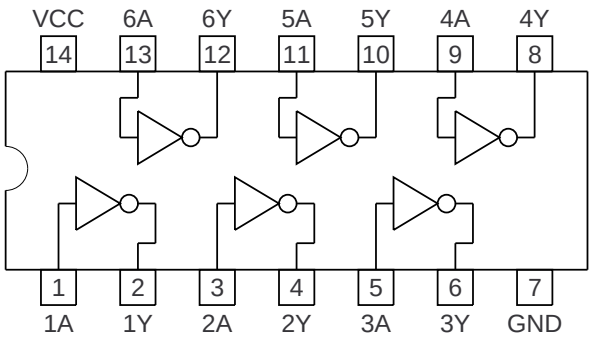
IC10: VHiNJM2902M-1 (NJM2902M)



IC8: VHiHEF4066BT1 (HEF4066)

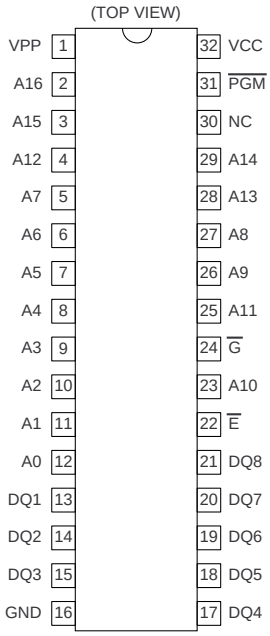


IC1: VHiMC74HCU04F (MC74HCU04F)



IC3: VHi27C02012TI (27C020)

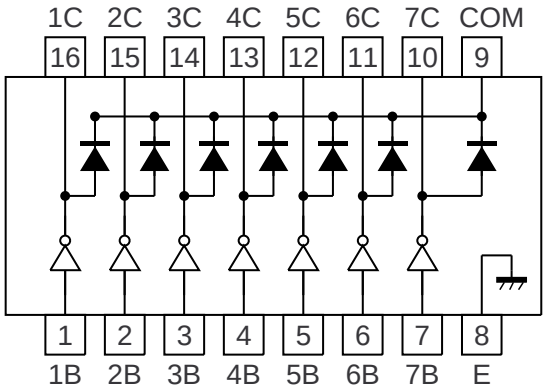
EP-ROM



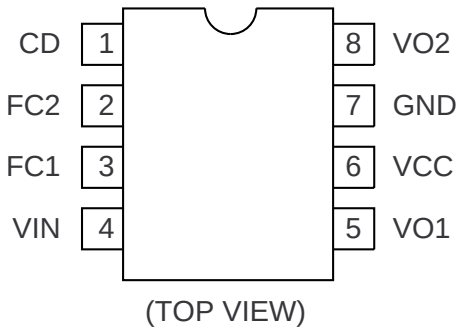
Pin name	Signal
A0~A17	Address input
$\overline{E}$	Chip enable
$\overline{G}$	Output enable
GND	Ground
$\overline{PGM}$	Program
DQ1~DQ8	Data output (Program input)
VCC	+5V power
VPP	+12.5V power(*)

(*) Only in the program mode

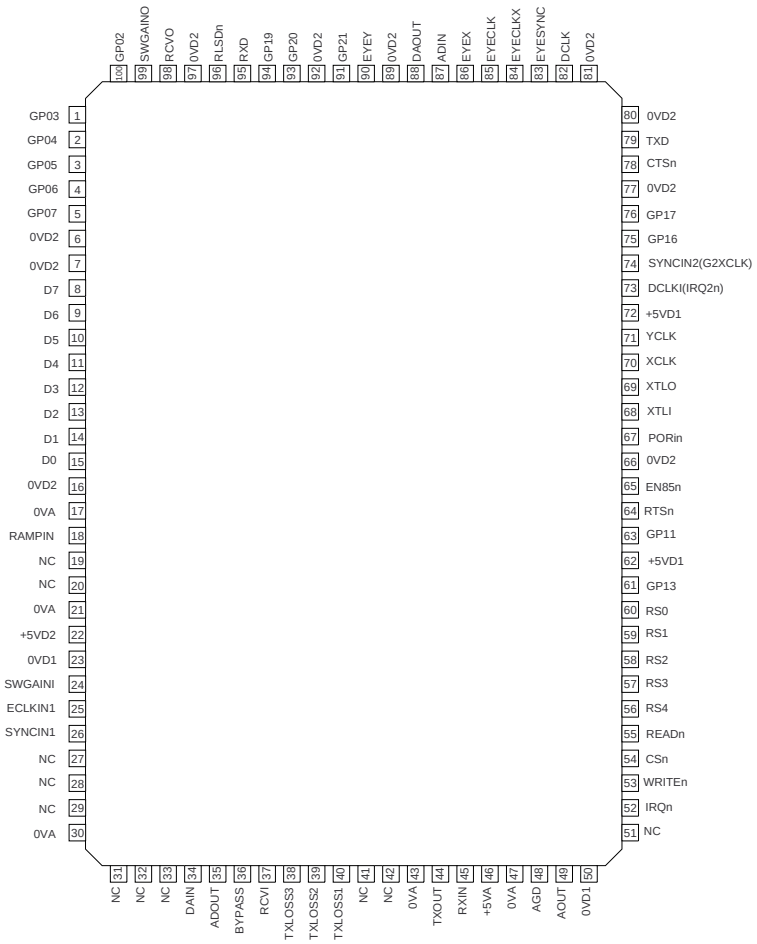
IC2: VHiULN2003AN/ (ULN2003ANS)



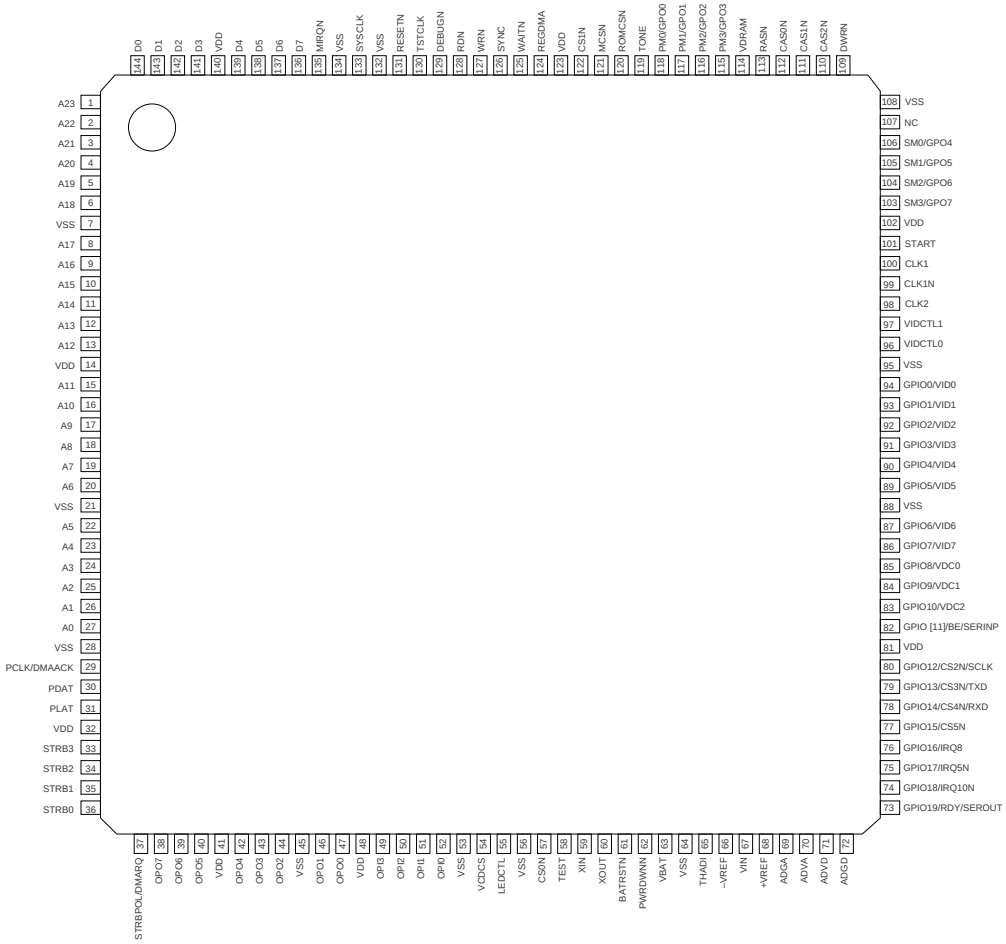
IC12: VHiNJM2113M-1 (NJM2113M)



IC11: VHiR144FCRMVP (R144EFXL)

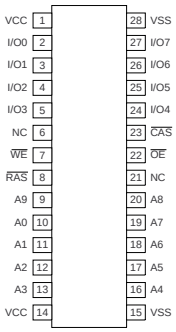


IC4: VHiR144FCRMVP (XFCR-MVP)



IC7: RH-IX2129SCZZ (IX2129)

VHIHM514800J8

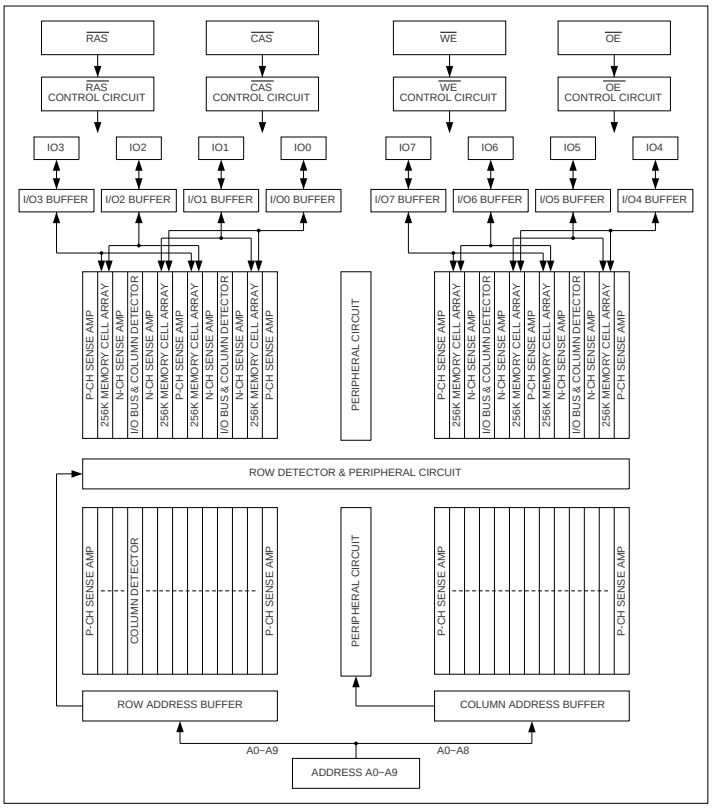


PIN DESCRIPTION

PIN	PIN NAME
A0–A9	ADDRESS INPUT (LOW/REFRESH A0–A3 COLUMN A0–A3)
I/O0–I/O7	DATA I/O
RAS	LOW ADDRESS STROBE

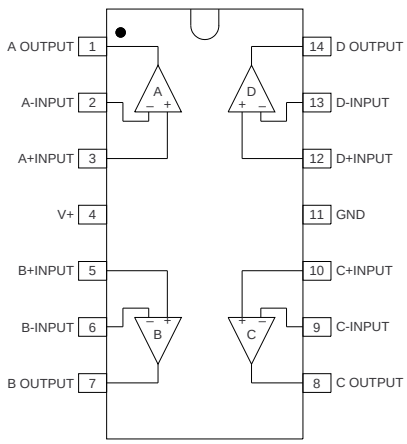
PIN	PIN NAME
CAS	COLUMN ADDRESS STROBE
WE	READ/WRITE INPUT
OE	OUTPUT ENABLE
VCC	POWER (+5V)
VSS	CONNECTION

BLOCK DIAGRAM



TEL/LIU PWB UNIT

IC1: VHiNJM2904D-1 (NJM2904D)



MEMO

SHARP

PARTS GUIDE

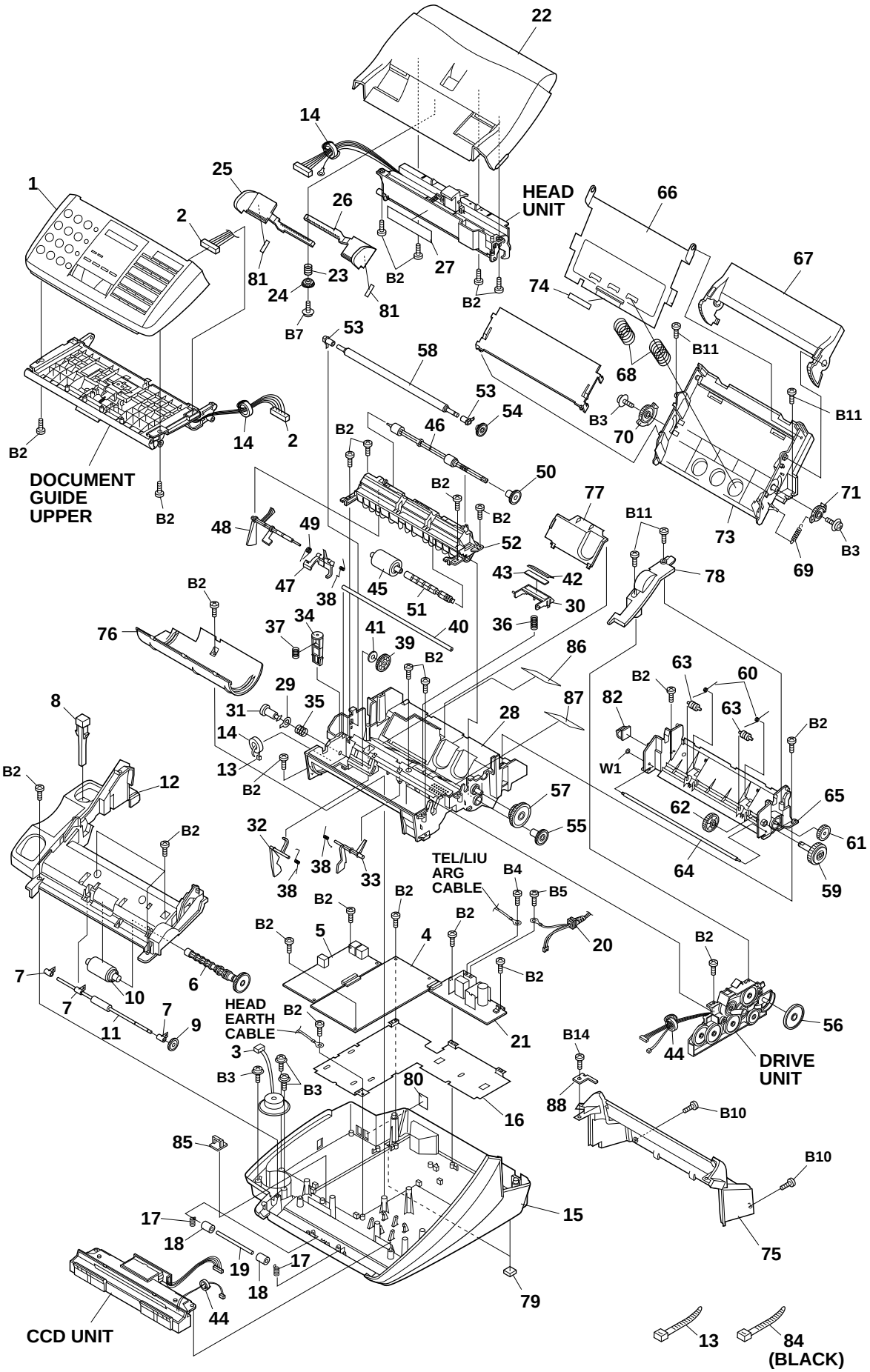
MODEL UX-600M FO-1660

CONTENTS

1 Cabinet, etc.
2 Upper cabinet
3 Document guide upper
4 Optical unit
5 Drive unit
6 Head unit
7 Packing material & Accessories
8 Control PWB unit
9 TEL-Liu PWB unit
10 Power supply PWB unit
11 CCD PWB unit
12 Multifunction interface PWB unit
50 Hardware parts
■ Index

Because parts marked with "⚠" is indispensable for the machine safety maintenance and operation, it must be replaced with the parts specific to the product specification.

1 Cabinet, etc.



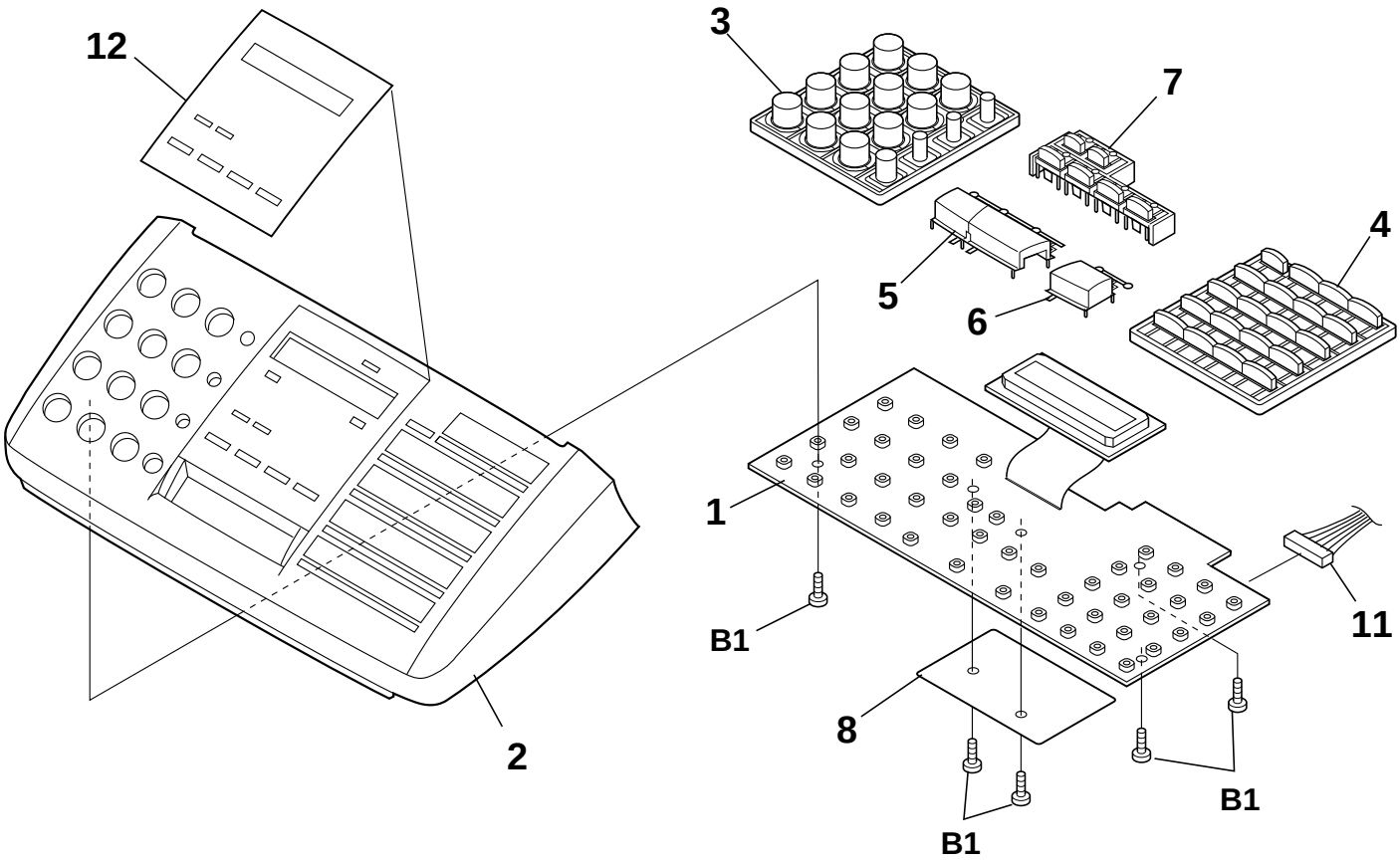
1 Cabinet, etc.

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	CPNLH2380AX03	BG	N	E	Operation panel unit	[600MU/600MC]
	CPNLH2380AX07	BG	N	E	Operation panel unit	[1660U/1660C]
2	QCNW-4690AXZZ	AN	N	C	Panel cable	
3	CCNW-4695AX01	AL	N	C	Speaker ass'y	
4	DCEKC389JAXZZ	CC	N	E	Control PWB unit(Within ROM)	[600MU]
	DCEKC588JAXZZ	CC	N	E	Control PWB unit(Within ROM)	[600MC]
	DCEKC584JAXZZ	CC	N	E	Control PWB unit(Within ROM)	[1660U]
	DCEKC589JAXZZ	CC	N	E	Control PWB unit(Within ROM)	[1660C]
5	DCEKL349BAX01	BD	N	E	TEL-Liu PWB unit	
6	CGERH2363AX01	AK	N	C	Feed gear ass'y	
7	LBSHP2088AXZZ	AC	N	C	Transfer bearing	
8	MLEVP2253AXSA	AD	N	C	Hook switch lever	
9	NGERH2275XHZZ	AC		C	Transfer gear 2	
10	NROLR2333XHZZ	AP		C	Feed roller	
11	NROLR2377AXZZ	AD	N	C	Transfer roller	
12	PGIDM2481AXSA	AT	N	C	Document guide lower	[600MU/600MC]
	PGIDM2481AXSC	AT	N	C	Document guide lower	[1660U/1660C]
13	LBNDJ2006SCZZ	AA		C	Band(GT-100M)	
⚠ 14	RCORF2064XHZZ	AF		B	Core(TRA31)	
15	GCABB2290AXSD	AZ	N	D	Lower cabinet	[600MU]
	GCABB2290AXSH	AZ	N	D	Lower cabinet	[600MC]
	GCABB2290AXSE	AZ	N	D	Lower cabinet	[1660U]
	GCABB2290AXSK	AZ	N	D	Lower cabinet	[1660C]
16	LPLTM2885AXFW	AQ	N	C	Shield plate	
17	MSPRC2931AXFJ	AC	N	C	Pinch roller spring 2	
18	CROLP2334AX01	AN	N	C	Pinch roller 2	
19	NSFTZ2258AXZZ	AE	N	C	Pinch roller shaft	
20	QACCZ2012XHZZ	AT		B	AC cord ass'y	
⚠ 21	RDENT2112AXZZ	BK	N	E	Power supply PWB unit	
22	GCOVA2376AXSA	AQ	N	D	Top cover	[600MU/600MC]
	GCOVA2376AXSC	AQ	N	D	Top cover	[1660U/1660C]
23	MSPRC2832AXZZ	AC	N	C	Hopper spring	
24	NGERP2318XHZZ	AD		C	Pinion gear	
25	PGIDM2483AXSA	AE	N	C	Hopper guide, left	[600MU/600MC]
	PGIDM2483AXSC	AE	N	C	Hopper guide, left	[1660U/1660C]
26	PGIDM2484AXSA	AE	N	C	Hopper guide, right	[600MU/600MC]
	PGIDM2484AXSC	AE	N	C	Hopper guide, right	[1660U/1660C]
27	TLABH4161AXZZ	AD	N	D	Imaging film set label	
28	LFRM-2180AXZZ	AU	N	C	Main frame	
29	LPLTM2791AXFW	AD		C	Hold down plate B	
30	LPLTP2884AXZZ	AP	N	C	Separate plate	
31	LSTPP2044XHZZ	AF		C	Back tention stopper	
32	MLEVP2249AXZZ	AC	N	C	P-IN sensor lever	
33	MLEVP2252AXZZ	AC	N	C	Film sensor lever	
34	MLEVP2258AXZZ	AC	N	C	Cover switch lever	
35	MSPRC2996AXFJ	AC	N	C	Slip spring	
36	MSPRC2995AXFJ	AC	N	C	Separate plate spring	
37	MSPRC2927AXFJ	AC	N	C	Pop up spring	
38	MSPRD2929AXFJ	AC	N	C	Sensor lever spring	
39	NGERH2310XHZZ	AE		C	Back tension gear	
40	NSFTM2280AXZZ	AK	N	C	Film guide shaft B	
41	PFLT-2009AXZZ	AD	N	C	Back tension felt	
42	PSHEZ3344AXZZ	AD	N	C	Separate sheet	
43	PSHEZ3293AXZZ	AH	N	C	Separate plate sheet	
⚠ 44	RCORF2063XHZZ	AF		B	Core(TRA20)	
45	CROLR2362AX01	AN	N	C	PU roller ass'y	
46	CROLR2363AX01	AN	N	C	PO roller ass'y	
47	MLEVP2250AXZZ	AD	N	C	PE sensor lever A	
48	MLEVP2251AXZZ	AD	N	C	PE sensor lever B	
49	MSPRD2930AXFJ	AC	N	C	PE sensor spring	
50	NGERH2359AXZZ	AD	N	C	PO gear	
51	NSFTM2268AXZZ	AE	N	C	PU roller shaft	
52	PGIDM2479AXZZ	AN	N	C	U turn guide	
53	LBSHP2086AXZZ	AC	N	C	Platen bearing	
54	NGERH2309XHZZ	AC		C	Platen gear	
55	NGERH2358AXZZ	AC	N	C	PU gear	
56	NGERH2360AXZZ	AE	N	C	Reduction gear B	
57	NGERH2361AXZZ	AE	N	C	Reduction gear A	
58	NROLR2364AXZZ	AW	N	C	Platen roller	
59	CGERH2314AX51	AP	N	C	Slip gear ass'y	
60	MSPRD2823AXFJ	AC	N	C	PO pinch roller spring	
61	NGERH2279XHZZ	AC		C	Idler gear A	
62	NGERH2367AXZZ	AD	N	C	Take-up gear	
63	NROLP2332XHZZ	AD		C	PO pinch roller	
64	NSFTM2279AXZZ	AK	N	C	Film shaft C	
65	PGIDM2485AXZZ	AL	N	C	PO guide	
66	LPLTM2887AXFW	AQ	N	C	Paper up plate	
67	LPLTP2888AXSA	AP	N	C	RP release plate	[600MU/600MC]
	LPLTP2888AXSC	AP	N	C	RP release plate	[1660U/1660C]
68	MSPRC2926AXFJ	AD	N	C	Cassette spring	

1 Cabinet, etc.

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
69	MSPRT2932AXFJ	AC	N	C	RP release spring
70	NGERH2365AXZZ	AD	N	C	RP release gear, left
71	NGERH2366AXZZ	AD	N	C	RP release gear, right
72	PGIDM2480AXSA	AG	N	C	Paper guide
73	PHOP-2095AXSA	AN	N	C	RP hopper [600MU/600MC]
	PHOP-2095AXSC	AN	N	C	RP hopper [1660U/1660C]
74	PSEL-2015SCZZ	AB	N	C	RP pad
75	GCABC2291AXSA	AL	N	D	Rear cabinet [600MU/600MC]
	GCABC2291AXSC	AL	N	D	Rear cabinet [1660U/1660C]
76	GCOVA2375AXZZ	AN	N	C	ROM cover
77	GCOVA2378AXZZ	AE	N	C	Memory cover
78	PCOVA2114AXZZ	AE	N	C	Side cover
79	GLEGG2063AXZZ	AC	N	C	Rubber leg
80	PSHEZ3334AXZZ	AC	N	C	Jack sheet
81	PSHEZ3332AXZZ	AE	N	C	Hopper sheet
82	LHLDW2341RCZZ	AB	N	C	Clamp
84	LBNDJ2008SCZZ	AA		C	Band(Black)
85	LHLDW1165AFZZ	AE	N	C	Clamp
86	PSHEZ3341AXZZ	AC	N	C	Guide sheet, left
87	PSHEZ3342AXZZ	AC	N	C	Guide sheet, right
88	CSHEZ3348AX01	AD	N	C	Reel sheet

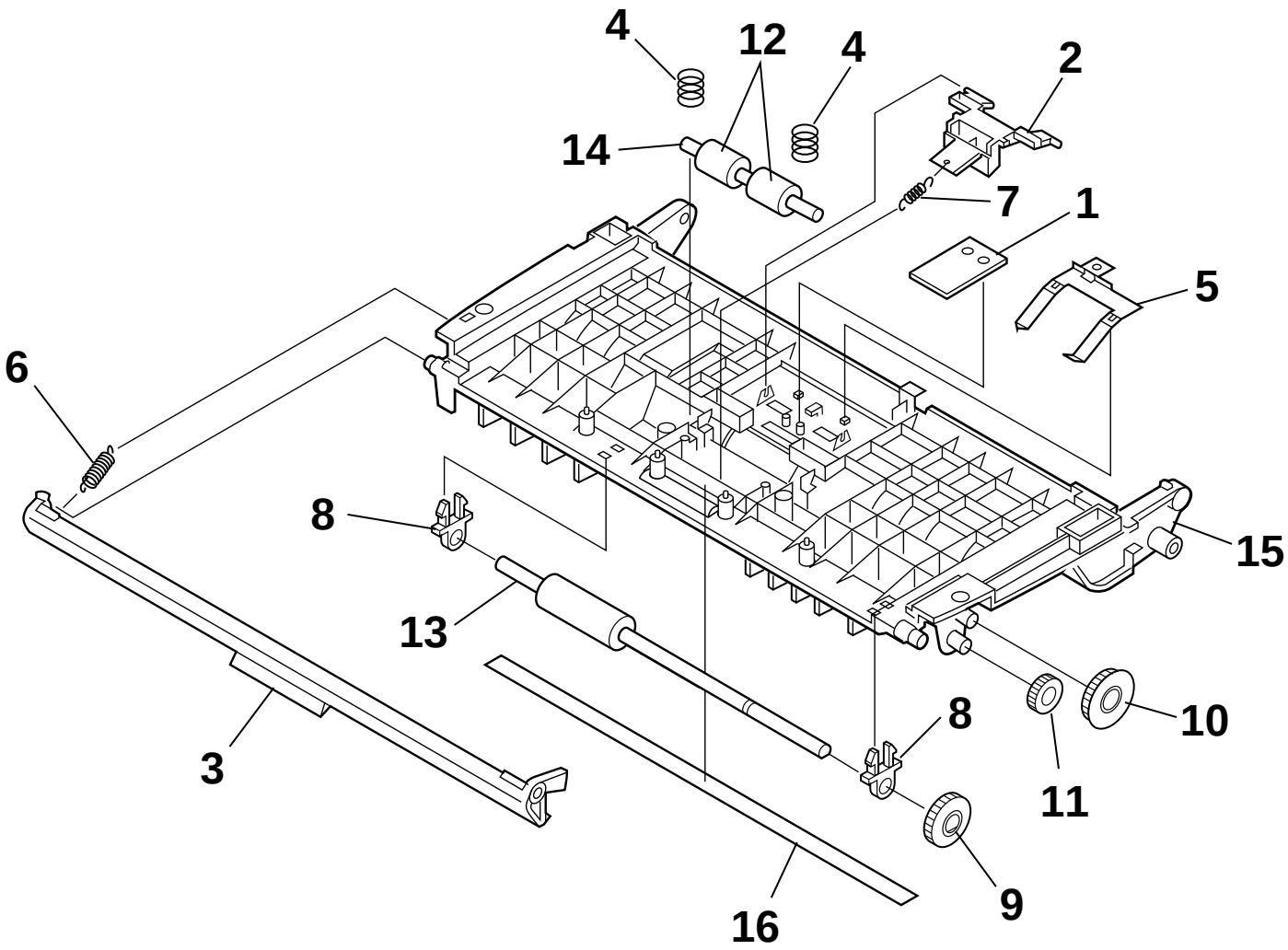
2 Upper cabinet



2 Upper cabinet

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	DCEKP351BAX01	BG	N	E	Operation panel PWB unit	
2	GCABA2289AXSD	AP	N	D	Upper cabinet	[600MU/600MC]
	GCABA2289AXSE	AP	N	D	Upper cabinet	[1660U/1660C]
3	JBTN-2202AXSA	AG	N	C	12 key	[600MU/600MC]
	JBTN-2202AXSC	AG	N	C	12 key	[1660U/1660C]
4	JBTN-2203AXSA	AF	N	C	Direct key	[600MU/600MC]
	JBTN-2203AXSC	AF	N	C	Direct key	[1660U/1600C]
5	JBTN-2204AXSA	AD	N	C	Start key	[600MU/600MC]
	JBTN-2204AXSB	AD	N	C	Start key	[1660U/1660C]
6	JBTN-2205AXSA	AD	N	C	Stop key	[600MU/600MC]
	JBTN-2205AXSB	AD	N	C	Stop key	[1660U/1660C]
7	JBTN-2206AXSA	AD	N	C	Mode key	
8	PSHEZ3291AXZZ	AD	N	C	Insulation sheet	
11	QCNW-4690AXZZ	AN	N	C	Panel cable	
12	HPNLH2380AXSD	AL	N	C	Decoration panel	[600MU/600MC]
	HPNLH2380AXSE	AL	N	C	Decoration panel	[1660U/1660C]
	(Unit)					
901	CPNLH2380AX03	BG	N	E	Operation panel unit	[600MU/600MC]
	CPNLH2380AX07	BG	N	E	Operation panel unit	[1660U/1600C]

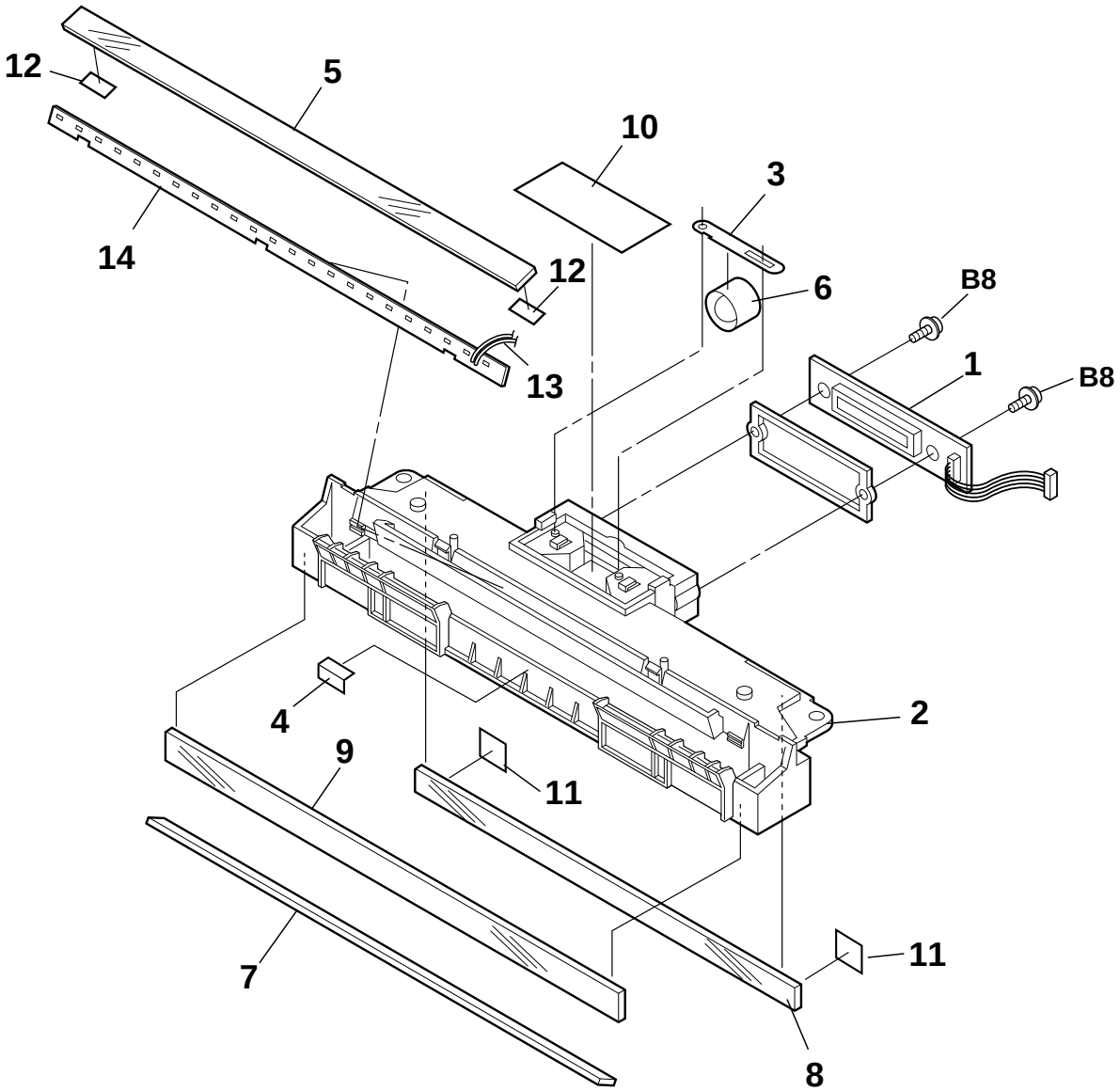
3 Document guide upper



3 Document guide upper

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	LPLTG2707XHZZ	AE		C	Separation rubber
2	LPLTP2790XHZZ	AD		C	Separate plate
3	MLEVP2257AXZZ	AG	N	C	Panel lock lever
4	MSPRC2924AXFJ	AC	N	C	Pinch roller spring
5	MSPRP2812SCZZ	AE	N	C	Paper feed spring
6	MSPRT2923AXFJ	AC	N	C	Panel lock lever spring
7	MSPRT2957AXZZ	AC	N	C	Separate spring
8	NBRGP2141AXZZ	AC	N	C	Transfer bearing
9	NGERH2275XHZZ	AC		C	Transfer gear 2
10	NGERH2317XHZZ	AC		C	Idler gear, 28Z
11	NGERH2356XHZZ	AC	N	C	Idler gear, 20Z
12	NROLP2334AXZZ	AE	N	C	Pinch roller
13	NROLR2365AXZZ	AV	N	C	Transfer roller
14	NSFTZ2257AXZZ	AE	N	C	Pinch roller shaft
15	PGIDM2482AXZZ	AP	N	C	Document guide upper
16	PSHEZ3290AXZZ	AD	N	C	Rear sheet

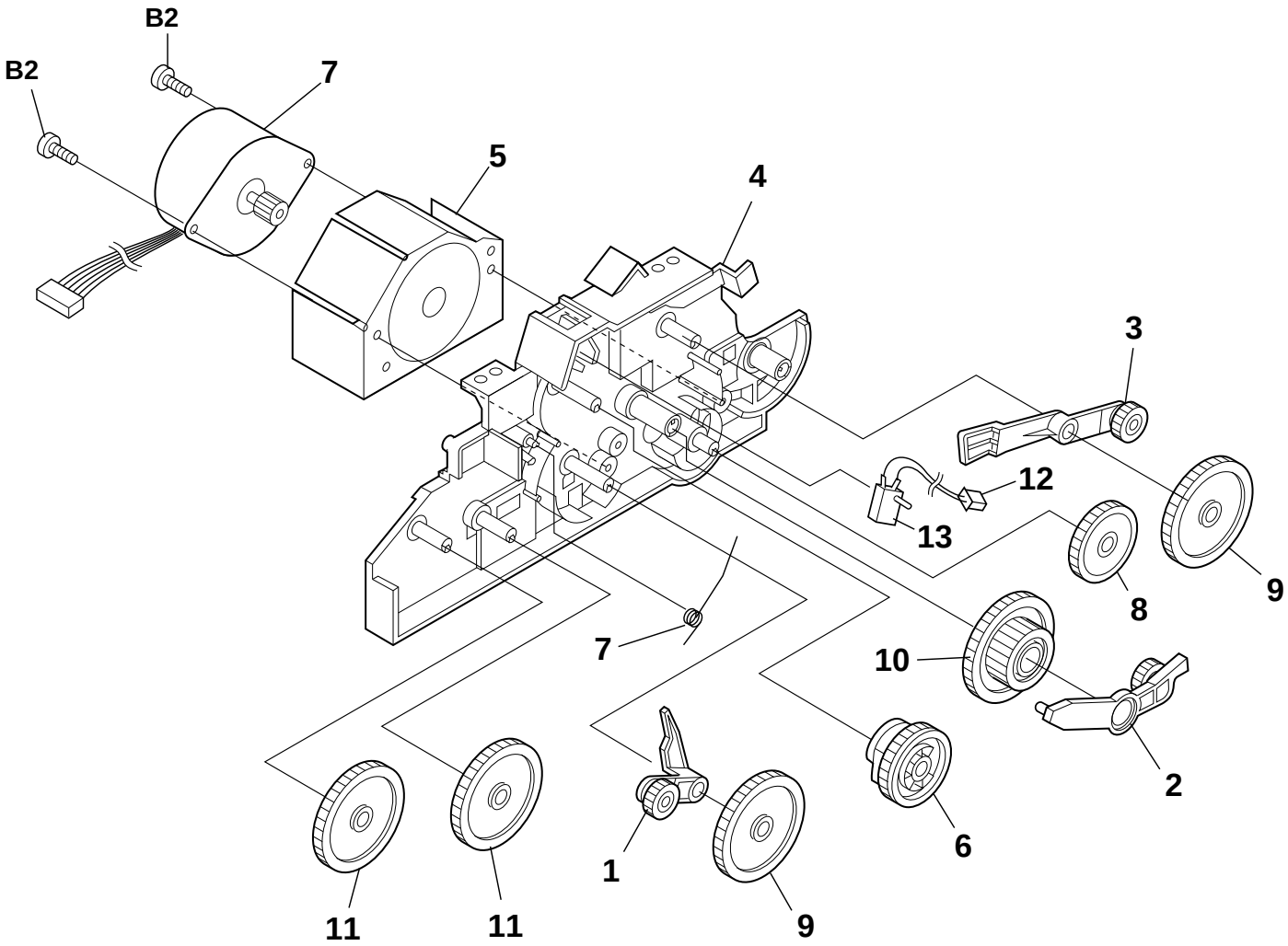
4 Optical unit



4 Optical unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	DCEKD475AAX05	BE	N	E	CCD PWB unit
2	LFRM-2164AXZA	AV	N	C	Optical frame
3	MSPRP2817SCZZ	AC	N	C	Lens holding spring
4	PFLT-2006XHZZ	AA		C	Felt
5	PGLSP2058XHZZ	AE		C	Reader glass
6	PLNS-2049XHZZ	AZ		C	Lens
7	PMIR-2070XHZZ	AG		C	Mirror 1
8	PMIR-2071XHZZ	AH		C	Mirror 2
9	PMIR-2072XHZZ	AH		C	Mirror 3
10	PSHEZ3196AXZZ	AC	N	C	Shading sheet
11	PSHEZ3250AXZZ	AB	N	C	Mirror sheet 2
12	PSHEZ3258AXZZ	AD	N	C	Shading sheet 3
13	QCNW-4693AXZZ	AD	N	C	LED cable
14	VHPSNK15A24-1	AZ		B	LED
	(Unit)				
901	DCYOD475AAX02	BN	N	E	Optical unit

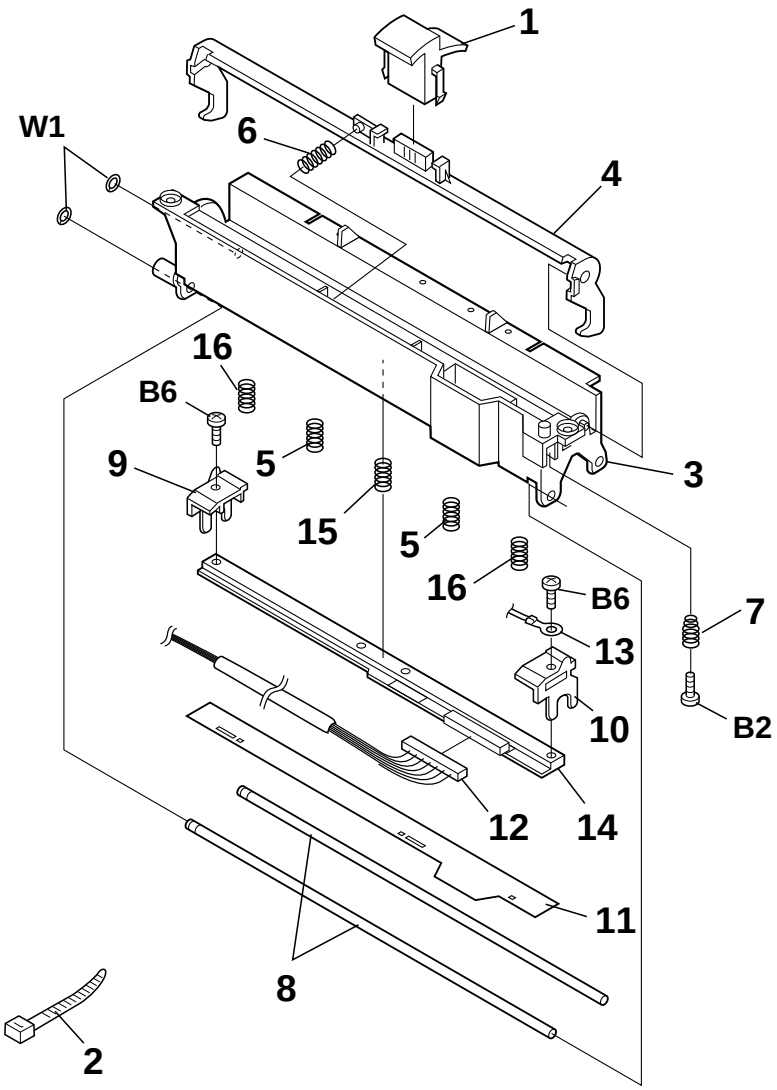
5 Drive unit



5 Drive unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	CLEVP2254AX01	AE	N	C	Planet lever A ass'y
2	CLEVP2255AX01	AE	N	C	Planet lever B ass'y
3	CLEVP2256AX01	AE	N	C	Planet lever C ass'y
4	LFRM-2181AXZZ	AV	N	C	Drive unit frame
5	LPLTM2886AXFW	AQ	N	C	Motor heat sink
6	MCAMP2023AXZZ	AD	N	C	Cam A
7	MSPRD2962AXFJ	AC	N	C	Cam hold spring
8	NGERH2279XHZZ	AC		C	Idler gear A
9	NGERH2281XHZZ	AD		C	Idler gear C
10	NGERH2361AXZZ	AE	N	C	Reduction gear A
11	NGERH2362AXZZ	AE	N	C	Reduction gear C
12	QCNW-4694AXZZ	AD	N	C	Cam switch cable
13	QSW-F2224SCZZ	AE		B	Cam switch
14	RMOTZ2131AXZZ	BB	N	B	Motor

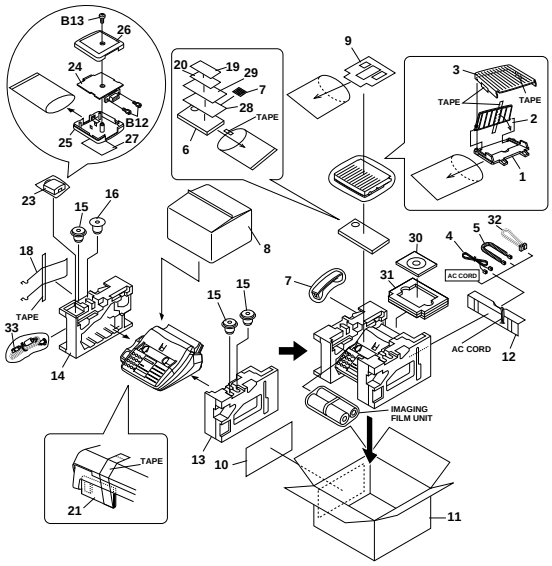
6 Head unit



6 Head unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	JKNBP2074AXSA	AD	N	C	Release knob [600MU/600MC]
	JKNBP2074AXSC	AD	N	C	Release knob [1660U/1660C]
2	LBNDJ2006SCZZ	AA		C	Band(GT-100M)
3	LFRM-2179AXZZ	AN	N	C	Head frame
4	MLEVP2248AXZZ	AD	N	C	Lock lever
5	MSPRC2964AXFJ	AD	N	C	Head spring C
6	MSPRC2920AXFJ	AC	N	C	Lock spring
7	MSPRC2928AXFJ	AC	N	C	Pop up spring
8	NSFTM2278AXZZ	AH	N	C	Film guide shaft
9	PGIDM2478AXZL	AD	N	C	Head guide, left
10	PGIDM2478AXZR	AD	N	C	Head guide, right
11	PSHEZ3292AXZZ	AE	N	C	Head guide sheet
12	QCNW-4691AXZZ	AQ	N	C	Head cable
13	QCNW-4702AXZZ	AE	N	C	Head earth cable
14	RHEDZ2052AXZZ	BR	N	B	Termal head
15	MSPRC2960AXFJ	AD	N	C	Head spring A
16	MSPRC2961AXFJ	AD	N	C	Head spring B

7 Packing material & Accessories



7 Packing material & Accessories

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	LPLTP2889AXSA	AK	N	C	Paper tray A	[600MU/600MC]
	LPLTP2889AXSC	AK	N	C	Paper tray A	[1660U/1660C]
2	LPLTP2890AXSA	AZ	N	C	Paper tray B	[600MU/600MC]
	LPLTP2890AXSC	AZ	N	C	Paper tray B	[1660U/1660C]
3	PCOVA2115AXSA	AL	N	C	Paper tray cover	
4	QCNW-3975AXGY	AH		C	Telephone line cord	[600MU/1660U]
	QCNW-3247SCZZ	AH		C	Telephone line cord	[600MC/1660C]
5	QCNW-3976XHOW	AK		C	Handset cord	[600MU/600MC]
	QCNW-3976XHOG	AT		C	Handset cord	[1660U/1660C]
6	TINSE3728AXZZ	AP	N	D	Operation manual	[600MU]
	TINSK3758AXZZ	AT	N	D	Operation manual	[600MC/1660C]
	TINSE3748AXZZ	AT	N	D	Operation manual	[1660U]
7	TLABH4163AXZZ	AC	N	D	Rapid key labels	[600MU/600MC]
	TLABH4163AXZB	AC	N	D	Rapid key labels	[1660U/1660C]
8	SPAKP4381AXZZ	AG		D	Vinyl cover	
9	TCADZ2516AXZZ	AF	N	D	Pop card	[600MU]
	TCADZ2534AXZZ	AF	N	D	Pop card	[600MC]
10	TLABM4182AXZZ	AD	N	D	Box label	[600MU]
	TLABM4268AXZZ	AD	N	D	Box label	[600MC]
11	SPAKC130AAXZZ	AQ	N	D	Packing case	[600MU]
	SPAKC196AAXZZ	AQ	N	D	Packing case	[600MC]
	SPAKC169AAXZZ	AQ	N	D	Packing case	[1660U]
	SPAKC200AAXZZ	AQ	N	D	Packing case	[1660C]
12	SPAKA114AAXZZ	AH	N	D	Add., accessories	
13	SPAKA111AAXZZ	AH	N	D	Packing add., right	
14	SPAKA110AAXZZ	AH	N	D	Packing add., left	
15	NGERH2315XHZZ	AE	N	C	Imaging film gear	
16	LBSHP2078XHZZ	AC	N	C	Imaging film frange	
17	DUNTK307BAXOW	AZ	N	E	Handset	[600MU/600MC]
	DUNTK307BAXOG	AZ	N	E	Handset	[1660U/1660C]
18	PWIR-2028SCZZ	AG	N	C	Original document support	
19	TLABH4238AXZA	AC	N	D	Paper setting label	[600MC/1660C]
20	TLABH4258AXZZ	AC	N	D	Imaging film setting label	[600MC/1660C]
21	SPAKA213AAXZZ	AC	N	D	Protection sheet	
23	CBOX-2011AX01	BD	N	E	Multifunction interface box unit	[600MU]
	CBOX-2011AX03	BD	N	E	Multifunction interface box unit	[600MC]
	CBOX-2011AX02	BD	N	E	Multifunction interface box unit	[1660U]
	CBOX-2011AX04	BD	N	E	Multifunction interface box unit	[1660C]
24	DCEKI312BAX01	BB	N	E	Multifunction interface PWB unit	
25	GBOX-2011XHZZ	AS		C	Multifunction interface box	
26	GBOX-2012XHZZ	AS		C	Multifunction interface box cover	
27	TSPC-3635AXZZ	AD	N	D	Specifications label, multifunction interface	[600MU]
	TSPC-3666AXZZ	AD	N	D	Specifications label, multifunction interface	[600MC]
	TSPC-3664AXZZ	AD	N	D	Specifications label, multifunction interface	[1660U]
	TSPC-3669AXZZ	AD	N	D	Specifications label, multifunction interface	[1660C]
28	TCADZ2539AXZZ	AF	N	D	Up grade coupon	
29	TCADZ2557AXZZ	AF	N	D	FD reference card	[600MU/1660U]
	TCADZ2559AXZZ	AF	N	D	FD reference card	[600MC/1660C]
30	UDSKA2002SCZZ	AR	N	E	CD-ROM	
31	SPAKA234AAXZZ	AK	N	D	Protection pad, CD-ROM	
32	QCNW-4616XHZZ	AN		C	Multifunction interface cable	
33	QCNW-4320SCZZ	BB		C	RS232C Cable	

8 Control PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	UBATL2049SCZZ	AF		B	Battery(CR2032T23)	[BAT1]
2	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µF)	[C2]
3	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µF)	[C3]
4	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µF)	[C4]
5	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µF)	[C5]
6	VCEAGA1HW107M	AA		C	Capacitor(50WV 100µF)	[C6]
7	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µF)	[C7]
8	VCEAGA1HW106M	AA		C	Capacitor(50WV 10µF)	[C8]
9	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7µF)	[C9]
10	VCEAGA1EW476M	AA		C	Capacitor(25WV 47µF)	[C10]
11	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µF)	[C11]
12	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µF)	[C12]
13	VCEAGA1HW106M	AA		C	Capacitor(50WV 10µF)	[C13]
14	VCEAGA1EW476M	AA		C	Capacitor(25WV 47µF)	[C14]
15	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7µF)	[C15]
16	VCEAGA1HW105M	AB		C	Capacitor(50WV 1µF)	[C16]
17	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C100]
18	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C104]
19	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C106]
20	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C107]
21	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C108]
22	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C109]
23	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C110]
24	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C111]
25	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C112]
26	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C113]
27	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C114]
28	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C117]
29	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C119]
30	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C120]
31	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C121]
32	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C122]
33	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C123]
34	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C124]
35	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C125]
36	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C126]
37	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C127]
38	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C128]
39	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C129]
40	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C130]
41	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C131]
42	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C132]
43	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C133]
44	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C134]
45	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C136]
46	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C137]
47	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C139]
48	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C140]
49	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C141]
50	VCCCTV1HH180J	AA		C	Capacitor(50WV 18PF)	[C142]
51	VCCCTV1HH180J	AA		C	Capacitor(50WV 18PF)	[C143]
52	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C144]
53	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C145]
54	VCCCTV1HH120J	AA		C	Capacitor(50WV 12PF)	[C146]
55	VCCCTV1HH100D	AA		C	Capacitor(50WV 10PF)	[C147]
56	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C148]
57	VCKYTV1HB103K	AB		C	Capacitor(50WV 0.01µF)	[C149]
58	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C150]
59	VCKYTV1HB472K	AA		C	Capacitor(50WV 4700PF)	[C151]
60	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C152]
61	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C153]
62	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C154]
63	VCKYTV1HB103K	AB		C	Capacitor(50WV 0.01µF)	[C155]
64	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1µF)	[C156]
65	VCCSTV1HL102J	AA		C	Capacitor(50WV 1000PF)	[C157]
66	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C158]
67	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C159]
68	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C160]
69	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1µF)	[C161]
70	VCKYTQ1HF104Z	AA		C	Capacitor(50WV 0.1µF)	[C162]
71	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C163]
72	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C164]
73	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C165]
74	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1µF)	[C166]
75	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C167]
76	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C168]
77	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C169]
78	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1µF)	[C170]
79	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C171]
80	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1µF)	[C172]

8 Control PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
81	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C173]
82	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C174]
83	VCCSTV1HL391J	AA		C	Capacitor(50WV 390PF)	[C175]
84	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C176]
85	VCKYTV1HB681K	AA		C	Capacitor(50WV 680PF)	[C177]
86	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF)	[C178]
87	VCCCTV1HH150J	AA		C	Capacitor(50WV 15PF)	[C180]
88	VCKYTV1HB102K	AA		C	Capacitor(50WV 1000PF)	[C181]
89	VCCSTV1HL102J	AA		C	Capacitor(50WV 1000PF)	[C183]
90	VCKYTQ1HF104Z	AA		C	Capacitor(50WV 0.1μF)	[C184]
91	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C187]
92	VCKYTV1HB222K	AA		C	Capacitor(50WV 2200PF)	[C188]
93	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C190]
94	VCCCTV1HH331J	AA		C	Capacitor(50WV 330PF)	[C191]
95	VCKYTV1CF105Z	AB		C	Capacitor(16WV 1μF)	[C192]
96	VCKYTV1EB104K	AA		C	Capacitor(25WV 0.1μF)	[C197]
97	VCKYTV1EF104Z	AA		C	Capacitor(25WV 0.1μF)	[C203]
98	QCNCM7014SC0G	AB		C	Connector(7pin)	[CNCCD]
99	QCNCM2442SC0B	AB		C	Conector(2pin)	[CNCS]
100	QCNCM2465SC3J	AF		C	Connector(30pin)	[CNDRM] [1660U/1660C]
101	QCNCM7014SC0B	AD		C	Connector(2pin)	[CNLED]
102	QCNCM2499SC1D	AG		C	Connector(14pin)	[CNLIUA]
103	QCNCM7014SC0F	AB		C	Connector(6pin)	[CNMT]
104	QJAKZ2062SCZZ	AG		C	Jack	[CNPC]
105	QCNCM7014SC1E	AC		C	Connector(15pin)	[CNPN]
106	QCNCM2499SC0I	AE		C	Connector(9pin)	[CNPW]
107	QCNCM2401SC0B	AA		C	Connector(2pin)	[CNSP]
108	QCNCM7014SC1F	AD		C	Connector(16pin)	[CNTH]
109	VHD1SS355//-1	AB		B	Diode(1SS355)	[D100]
110	VHD1SS355//-1	AB		B	Diode(1SS355)	[D101]
111	VHDDAP202U/-1	AB		B	Diode(DAP202U)	[D102]
112	VHD1SS355//-1	AB		B	Diode(1SS355)	[D103]
113	VHD1SS355//-1	AB		B	Diode(1SS355)	[D104]
114	VHD1SS355//-1	AB		B	Diode(1SS355)	[D105]
115	VHD1SS355//-1	AB		B	Diode(1SS355)	[D106]
116	VHVICPS07//-1	AA		B	Varistor(ICP-S07)	[FU100]
117	VHIMC74HCU04F	AD		B	IC(MC74HCU04F)	[IC1]
118	VHIULN2003AN/	AE		B	IC(ULN2003ANS)	[IC2]
119	QSOCZ2051SC32	AC		C	IC socket(32pin)	[IC3]
	VHI27020FHH0E	BN		B	IC, EPROM(2MB)	[IC3]
121	VHIR144FCRMVP	BV	N	B	IC(XFCR-MVP)	[IC4] [Within IC4 and IC11 pair]
122	VHIM66230FP-1	AY	N	B	IC(M66230FP)	[IC5]
123	VHIS2B256SL70	AU	N	B	IC(SRM2B256SLMX70)	[IC6]
124	RH-IX2129SCZZ	AY		B	IC(IX2129)	[IC7]
125	VHIHEF4066BT1	AF		B	IC(HEF4066)	[IC8]
126	VHIMC14053DR2	AG		B	IC(MC14053DR2)	[IC9]
127	VHINJM2902M-1	AF		B	IC(NJM2902M)	[IC10]
128	VHIR144FCRMVP	BV	N	B	IC(R144EFXL)	[IC11] [Within IC4 and IC11 pair]
129	VHINJM2113M-1	AG		B	IC(NJM2113M)	[IC12]
130	VHINJM318M/-F	AF		B	IC(NJM318M)	[IC13]
131	VHIPST596CMT1	AF	N	B	IC(PST596CNR)	[IC100]
132	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L100]
133	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L101]
134	RCILZ2104SCZZ	AK		C	Coil(Z2104)	[L102]
135	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L103]
136	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L104]
137	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L105]
138	VRS-TP2BD000J	AA		C	Resistor(1/8W 0Ω ±5%)	[L106]
139	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L107]
140	VRS-TP2BD000J	AA		C	Resistor(1/8W 0Ω ±5%)	[L108]
141	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%)	[L109]
142	VRS-TS2AD102J	AA		C	Resistor(1/10W 1KΩ ±5%)	[L110]
143	RCILZ2104SCZZ	AK		C	Coil(Z2104)	[L111]
144	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L112]
145	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[L113]
146	VRS-TS2AD101J	AA		C	Resistor(1/10W 100Ω ±5%)	[L114]
147	RCILZ2104SCZZ	AK		C	Coil(Z2104)	[L115]
148	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L116]
149	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L117]
150	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L118]
151	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[L120]
152	VHPSG206S//-1	AG		B	Photo transistor(SG206S)	[PI1]
153	VHPSG206S//-1	AG		B	Photo transistor(SG206S)	[PI2]
154	VSDTD114EK/-1	AC		B	Transistor(DTD114EK)	[Q101]
155	VSRNC1402//-1	AC		B	Transistor(RNC1402)	[Q102]
156	VSRNC1402//-1	AC		B	Transistor(RNC1402)	[Q103]
157	VSRNC1402//-1	AC		B	Transistor(RNC1402)	[Q104]
158	VSRNC1402//-1	AC		B	Transistor(RNC1402)	[Q105]
159	VRD-HT2EY100J	AA		C	Resistor(1/4W 10Ω ±5%)	[R1]
160	VRS-TS2AD562J	AA		C	Resistor(1/10W 5.6KΩ ±5%)	[R100]

8 Control PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
161	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%)	[R101]
162	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R102]
163	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R104]
164	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R106]
165	VRS-TS2AD201J	AG		C	Resistor(1/10W 200Ω ±5%)	[R107]
166	VRS-TS2AD105J	AA		C	Resistor(1/10W 1.0MΩ ±5%)	[R108]
167	VRS-TS2AD102J	AA		C	Resistor(1/10W 1.0KΩ ±5%)	[R109]
168	VRS-TS2AD201J	AG		C	Resistor(1/10W 200Ω ±5%)	[R110]
169	VRS-TS2AD680J	AA		C	Resistor(1/10W 68Ω ±5%)	[R111]
170	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R112]
171	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R113]
172	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R115]
173	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R116]
174	VRS-TS2AD474J	AA		C	Resistor(1/10W 470KΩ ±5%)	[R117]
175	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R118]
176	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R119]
177	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R120]
178	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R121]
179	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R122]
180	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R123]
181	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R124]
182	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R125]
183	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R126]
184	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R127]
185	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R128]
186	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R129]
187	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R130]
188	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R131]
189	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R132]
190	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R133]
191	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R134]
192	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R135]
193	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R136] [1660U/1660C]
194	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R137]
195	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R138]
196	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R139]
197	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R140]
198	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R141]
199	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R142]
200	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R144]
201	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R145]
202	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R146]
203	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R147]
204	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R148]
205	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R149]
206	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R150]
207	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R151]
208	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R152]
209	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R153]
210	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R154]
211	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R155]
212	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R156]
213	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R157]
214	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R158]
215	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R159]
216	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R160]
217	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R161]
218	VRS-TS2AD201J	AG		C	Resistor(1/10W 200Ω ±5%)	[R162]
219	VRS-TS2AD223J	AA		C	Resistor(1/10W 22KΩ ±5%)	[R163]
220	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R164]
221	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R165]
222	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R166]
223	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R167]
224	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R168]
225	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R169]
226	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R170]
227	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R171]
228	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R172]
229	VRS-TS2AD820J	AA		C	Resistor(1/10W 82Ω ±5%)	[R173]
230	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R174]
231	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R175]
232	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R176]
233	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%)	[R177]
234	VRS-TS2AD106J	AA		C	Resistor(1/10W 10MΩ ±5%)	[R178]
235	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R179]
236	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R180]
237	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R181]
238	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R182]
239	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R183]
240	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R184]

8 Control PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
241	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R185]
242	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R186]
243	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R187]
244	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R188]
245	VRS-TS2AD100J	AA		C	Resistor(1/10W 10.0Ω ±5%)	[R189]
246	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R190]
247	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R191]
248	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%)	[R192]
249	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R194]
250	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R195]
251	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R196]
252	VRS-TS2AD102J	AA		C	Resistor(1/10W 1.0KΩ ±5%)	[R197]
253	VRS-TS2AD473J	AA		C	Resistor(1/10W 47KΩ ±5%)	[R198]
254	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R199]
255	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R200]
256	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R201]
257	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R202]
258	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R204]
259	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%)	[R205]
260	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R206]
261	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R207]
262	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R208]
263	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R209]
264	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R210]
265	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R211]
266	VRS-TS2AD221J	AA		C	Resistor(1/10W 220Ω ±5%)	[R212]
267	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R213]
268	VRS-TS2AD273J	AA		C	Resistor(1/10W 27KΩ ±5%)	[R214]
269	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R215]
270	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R216]
271	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R217]
272	VRS-TS2AD152J	AA		C	Resistor(1/10W 1.5KΩ ±5%)	[R218]
273	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R219]
274	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R220]
275	VRS-TS2AD681J	AA		C	Resistor(1/10W 680Ω ±5%)	[R221]
276	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R222]
277	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R223]
278	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R224]
279	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R225]
280	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R226]
281	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R227]
282	VRS-TS2AD183J	AA		C	Resistor(1/10W 18KΩ ±5%)	[R228]
283	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R229]
284	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R230]
285	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R231]
286	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R232]
287	VRS-TS2AD100J	AA		C	Resistor(1/10W 10Ω ±5%)	[R233] [1660U/1660C]
288	VRS-TS2AD102J	AA		C	Resistor(1/10W 1.0KΩ ±5%)	[R234]
289	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R235]
290	VRS-TS2AD562J	AA		C	Resistor(1/10W 5.6KΩ ±5%)	[R236]
291	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R237]
292	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R238]
293	VRSTS2AD4752F	AA		C	Resistor(1/10W 47.5KΩ ±1%)	[R239]
294	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R240]
295	VRS-TS2AD303J	AA		C	Resistor(1/10W 30KΩ ±5%)	[R241]
296	VRS-TS2AD151J	AA		C	Resistor(1/10W 150Ω ±5%)	[R242]
297	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R243]
298	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R244]
299	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R245]
300	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R246]
301	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R247]
302	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R248]
303	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R249]
304	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R250]
305	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R251]
306	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R252]
307	VRSTS2AD1742F	AA		C	Resistor(1/10W 17.4KΩ ±1%)	[R253]
308	VRS-TS2AD102J	AA		C	Resistor(1/10W 1.0KΩ ±5%)	[R254]
309	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R255]
310	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R256]
311	VRS-TS2AD3R0J	AA		C	Resistor(1/10W 3.0Ω ±5%)	[R258]
312	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R259]
313	VRS-TS2AD822J	AA		C	Resistor(1/10W 8.2KΩ ±5%)	[R260]
314	VRS-TS2AD302J	AA		C	Resistor(1/10W 3KΩ ±5%)	[R261]
315	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R262]
316	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R263]
317	VRS-TS2AD100J	AA		C	Resistor(1/10W 10.0Ω ±5%)	[R264]
318	VRS-TS2AD133J	AA		C	Resistor(1/10W 13KΩ ±5%)	[R265]
319	VRS-TS2AD102J	AA		C	Resistor(1/10W 1.0KΩ ±5%)	[R266]
320	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R267]

8 Control PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
321	VRSTS2AD8662F	AA		C	Resistor(1/10W 86.6KΩ ±1%)	[R268]
322	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R269]
323	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R270]
324	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R271]
325	VRS-TS2AD302J	AA		C	Resistor(1/10W 3KΩ ±5%)	[R272]
326	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R273]
327	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%)	[R274]
328	VRS-TS2AD203J	AA		C	Resistor(1/10W 20KΩ ±5%)	[R276]
329	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R277]
330	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R278]
331	VRSTS2AD8662F	AA		C	Resistor(1/10W 86.6KΩ ±1%)	[R280]
332	VRS-TS2AD102J	AA		C	Resistor(1/10W 1.0KΩ ±5%)	[R282]
333	VRS-TS2AD104J	AA		C	Resistor(1/10W 100KΩ ±5%)	[R283]
334	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R284]
335	VRS-TS2AD623J	AA		C	Resistor(1/10W 62KΩ ±5%)	[R285]
336	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R286]
337	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R287]
338	VRS-TS2AD102J	AA		C	Resistor(1/10W 1.0KΩ ±5%)	[R288]
339	VRS-TS2AD154J	AA		C	Resistor(1/10W 150KΩ ±5%)	[R289]
340	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R290]
341	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R291] [600MU/600MC]
342	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R292]
343	VRS-TS2AD332J	AA		C	Resistor(1/10W 3.3KΩ ±5%)	[R294]
344	VRS-TS2AD333J	AA		C	Resistor(1/10W 33KΩ ±5%)	[R295]
345	VRS-TS2AD103J	AA		C	Resistor(1/10W 10KΩ ±5%)	[R296] [1660U/1660C]
346	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R297]
347	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R298]
348	VRS-TS2AD271J	AA		C	Resistor(1/10W 270Ω ±5%)	[R299]
349	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R307]
350	VRS-TS2AD471J	AA		C	Resistor(1/10W 470Ω ±5%)	[R308]
351	VRS-TS2AD000J	AA		C	Resistor(1/10W 0Ω ±5%)	[R309]
352	RRLYD3130SCZZ	AN		B	Relay	[RY1]
353	RCRSQ1005LCZZ	AE		B	Crystal(19.66MHz)	[X1]
354	RCRSB0297AFZZ	AD		B	Crystal(32.768KHz)	[X2]
355	RCRSQ2109SCZZ	AL		B	Crystal(38.00053MHz)	[X3]
356	VHERD22FB3/-1	AC		B	Zener diode(RD22FB3)	[ZD2]
357	TLABP3078AXZZ	AA		D	Shading label(for EP-ROM)	
	(Unit)					
901	DCEKC389JAXZZ	CC	N	E	Control PWB unit(Within ROM)	[600MU]
	DCEKC588JAXZZ	CC	N	E	Control PWB unit(Within ROM)	[600MC]
	DCEKC584JAXZZ	CC	N	E	Control PWB unit(Within ROM)	[1660U]
	DCEKC589JAXZZ	CC	N	E	Control PWB unit(Within ROM)	[1660C]

9 TEL-Liu PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	VHVRA391PV6-1	AE		B	Varistor(RA-391P-V6-2)	[AR1]
2	QCNW-4704AXZZ	AD	N	C	ARG cable	[ARG]
3	RC-FZ3024SCZZ	AG		C	Capacitor(250WV 0.82µF)	[C1]
4	VCKYPU1HB103K	AA		C	Capacitor(50WV 0.01µF)	[C2]
5	VCKYPU1HB102K	AA		C	Capacitor(50WV 1000PF)	[C3]
6	VCKYPU1HB102K	AA		C	Capacitor(50WV 1000PF)	[C4]
7	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7µF)	[C5]
8	VCKYPU1HB222K	AA		C	Capacitor(50WV 2200PF)	[C7]
9	VCQYNA1HM333K	AA		C	Capacitor(50WV 0.033µF)	[C8]
10	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7µF)	[C9]
11	VCKYPU1HB222K	AA		C	Capacitor(50WV 2200PF)	[C10]
12	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7µF)	[C11]
13	VCEAGA1HW225M	AA		C	Capacitor(50WV 0.47µF)	[C12]
14	VCKYPU1HB221K	AB		C	Capacitor(50WV 220PF)	[C13]
15	VCKYPU1HB102K	AA		C	Capacitor(50WV 1000PF)	[C14]
16	VCKYPU1HB102K	AA		C	Capacitor(50WV 1000PF)	[C15]
17	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µF)	[C16]
18	VCKYPU1HB332K	AA		C	Capacitor(50WV 3300PF)	[C17]
19	VCKYPU1HF223Z	AA		C	Capacitor(50WV 0.022µF)	[C18]
20	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7µF)	[C19]
21	VCKYPU1HB222K	AA		C	Capacitor(50WV 2200PF)	[C20]
22	RRLYD3221SCZZ	AN		B	Relay(OUAZ-SH-124D)	[CML]
23	QCNCW2500SC1D	AG		C	Connector(14Pin)	[CNLIU]
24	VHD1SS133//-1	AA		B	Diode(1SS133)	[D1]
25	VHD1SS133//-1	AA		B	Diode(1SS133)	[D2]
26	VHD1SS133//-1	AA		B	Diode(1SS133)	[D3]
27	VHD1SS133//-1	AA		B	Diode(1SS133)	[D4]
28	VHINJM2904D-1	AG		B	IC(NJM2904D)	[IC1]
29	QJAKZ2046SCBB	AH		C	Jack	[MJ1/2]
30	QJAKZ2065SC0D	AG		C	Jack	[MJTEL]

9 TEL-Liu PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
31	VHPPC817X7/-1	AD		B	Photo coupler(PC817X7)	[PC1]
32	VHPPC814X//-1	AE		B	Photo transistor(PC814X)	[PC2]
33	VHPSG206S//-1	AG		B	Photo transistor(SG206S)	[PE]
34	VSDTC114ES/-1	AB		B	Transistor(DTC114ES)	[Q1]
35	VS2SC1815GR-1	AB		B	Transistor(2SC1815GR)	[Q2]
36	VSDTC114ES/-1	AB		B	Transistor(DTC114ES)	[Q3]
37	VRD-HT2EY910J	AA		C	Resistor(1/4W 91Ω ±5%)	[R1]
38	VRD-HT2EY300J	AA		C	Resistor(1/4W 30Ω ±5%)	[R2]
39	VRD-HT2HY223J	AA		C	Resistor(1/2W 22KΩ ±5%)	[R3]
40	VRD-HT2EY223J	AA		C	Resistor(1/4W 22KΩ ±5%)	[R5]
41	VRD-HT2EY221J	AA		C	Resistor(1/4W 220Ω ±5%)	[R6]
42	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R7]
43	VRD-HT2EY153J	AA		C	Resistor(1/4W 15KΩ ±5%)	[R8]
44	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R9]
45	VRD-HT2EY621J	AA		C	Resistor(1/4W 620Ω ±5%)	[R10]
46	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R11]
47	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R12]
48	VRD-HT2EY103J	AA		C	Resistor(1/4W 10KΩ ±5%)	[R13]
49	VRD-HT2EY332J	AA		C	Resistor(1/4W 3.3KΩ ±5%)	[R14]
50	VRD-HT2EY102J	AA		C	Resistor(1/4W 1.0KΩ ±5%)	[R15]
51	VRD-HT2EY152J	AA		C	Resistor(1/4W 1.5KΩ ±5%)	[R16]
52	VRD-HT2EY102J	AA		C	Resistor(1/4W 1.0KΩ ±5%)	[R18]
53	VRD-HT2EY152J	AA		C	Resistor(1/4W 1.5KΩ ±5%)	[R19]
54	VRD-HT2EY102J	AA		C	Resistor(1/4W 1.0KΩ ±5%)	[R20]
55	VRD-HT2EY153J	AA		C	Resistor(1/4W 15KΩ ±5%)	[R21]
56	VRD-HT2EY332J	AA		C	Resistor(1/4W 3.3KΩ ±5%)	[R22]
57	VRD-HT2EY151J	AA		C	Resistor(1/4W 150Ω ±5%)	[R24]
58	QSW-Z2206SCZZ	AH		B	Hook switch	[SW1]
59	QSW-Z2226SCZZ	AG		B	Door switch	[SW2]
60	RTRNZ2128XH01	AP		B	Transformer(Z2128)	[T1]
61	VHVERZV5D471/	AC		B	Varistor(ERZV5D471)	[VA1]
62	VHVERZV5D471/	AC		B	Varistor(ERZV5D471)	[VA2]
63	VHEHZ2C1///-1	AA		B	Zener diode(HZ2C1)	[ZD1]
64	VHEHZ2C1///-1	AA		B	Zener diode(HZ2C1)	[ZD2]
65	VHEHZ27-1//-1	AB		C	Zener diode(HZ27)	[ZD3]
66	VHEHZ2C1///-1	AA		B	Zener diode(HZ2C1)	[ZD4]
67	VHEHZ2C1///-1	AA		B	Zener diode(HZ2C1)	[ZD5]
	(Unit)					
901	DCEKL349BAX01	BD	N	E	TEL-Liu PWB unit	

10 Power supply PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	0KY0L551A0020	AF		C	Coil(BL02RN2-R62)	[BEA1]
2	0KY0L551A0010	AE		C	Coil(BL02RN1-R62)	[BEA101]
3	0KY0C245Q1040	AM	N	C	Capacitor(250WV 0.1μF)	[C1]
4	0KY0C3K7K2210	AW		C	Capacitor(200WV 220μF)	[C5]
5	0KY0C1A9R2210	AG		C	Capacitor(1KWV 220PF)	[C8]
6	0KY0C251E4720	AE		C	Capacitor(50WV 4700PF)	[C9]
7	0KY0C251E1030	AE		C	Capacitor(50WV 0.01μF)	[C10]
8	0KY0C151M2210	AE		C	Capacitor(500WV 220PF)	[C11]
9	0KY0C176Q4720	AL	N	C	Capacitor(VA3 4700μF)	[C72]
10	0KY0C374D3310	AN		C	Capacitor(35WV 330μF)	[C101]
11	0KY0C374D3310	AN		C	Capacitor(35WV 330μF)	[C102]
12	0KY0C162E1040	AF		C	Capacitor(50WV 0.1μF)	[C110]
13	0KY0C1A9Y1020	AG		C	Capacitor(500WV 1000PF)	[C111]
14	0KY0K251A0020	AK		C	Connector(3pin)	[CN1]
15	0KY0K221B0090	AP	N	C	Connector(9pin)	[CN101]
16	0KY0D251A0020	AD		B	Diode(1SS133)	[D4]
17	0KY0D466A0600	AE		B	Zener diode(HZS9B2)	[D5]
18	0KY0D251A0020	AD		B	Diode(1SS133)	[D6]
19	0KY0D251A0020	AD		B	Diode(1SS133)	[D7]
20	0KY0D157A0060	AG		B	Diode(ERA15-06)	[D10]
21	0KY0D157A0060	AG		B	Diode(ERA15-06)	[D11]
22	0KY0D157A0060	AG		B	Diode(ERA15-06)	[D12]
23	0KY0D157A0060	AG		B	Diode(ERA15-06)	[D13]
24	0KY0D221B0020	AT	N	B	Diode(YG911S2R)	[D101]
25	0KY0D266A0060	AM		B	Diode(ERA83-006)	[D102]
26	0KY0D461A3200	AL		B	Zener diode(HZ-30CP)	[D104]
27	0KY0D466A0480	AE		B	Zener diode(HZS7A2)	[D110]
28	0KY0K716A4R00	AK		A	Fuse(4.0A 125V)	[F1]
29	0KY0K758A4R00	AT	N	A	Fuse(4.0A 125V)	[F101]
30	0KY0M850A0010	AE		C	Fuse holder	[FH1]
31	0KY0M850A0010	AE		C	Fuse holder	[FH2]
32	0KY0MPS027700	AP	N	C	Heat sink	[HS1]
33	0KY0MPH006800	AH	N	C	Heat sink	[HS2]

10 Power supply PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
34	0KY0H130A0050	AT		B	IC(TA78M05S)	[IC103]
35	0KY0L113J1830	AQ		C	Line filter	[L1]
36	0KY0D763A4R00	AN	N	B	Thermistor	[NTC1]
37	0KY0H719A0010	AP		B	Photo coupler(PC817B)	[PC1]
38	0KY0T644A0010	AV		B	FET(2SK2972)	[Q1]
39	0KY0T358A0040	AG		B	Transistor(2SC1741AS)	[Q2]
40	0KY0T351A0050	AF		B	Transistor(2SC1740S)	[Q101]
41	0KY0R153U1050	AC		C	Resistor(1/4W 1MΩ ±5%)	[R1]
42	0KY0R153U3940	AC		C	Resistor(1/4W 390KΩ ±5%)	[R2]
43	0KY0R153U1830	AC		C	Resistor(1/4W 18KΩ ±5%)	[R5]
44	0KY0R153U4710	AC		C	Resistor(1/4W 470Ω ±5%)	[R6]
45	0KY0R153U1810	AC		C	Resistor(1/4W 180Ω ±5%)	[R7]
46	0KY0R153U3330	AB		C	Resistor(1/4W 33KΩ ±5%)	[R8]
47	0KY0R153U1010	AC	N	C	Resistor(1/4W 100Ω ±5%)	[R9]
48	0KY0R153U6220	AC		C	Resistor(1/4W 6.2KΩ ±5%)	[R10]
49	0KY0R153U8220	AC		C	Resistor(1/4W 6.8KΩ ±5%)	[R11]
50	0KY0R153U1830	AC		C	Resistor(1/4W 18KΩ ±5%)	[R12]
51	0KY0R153U6810	AC		C	Resistor(1/4W 680Ω ±5%)	[R17]
52	0KY0R153U3920	AC		C	Resistor(1/4W 3.9KΩ ±5%)	[R102]
53	0KY0R153U3920	AC		C	Resistor(1/4W 3.9KΩ ±5%)	[R103]
54	0KY0R153U3310	AC		C	Resistor(1/4W 330Ω ±5%)	[R110]
55	0KY0R153U1020	AB		C	Resistor(1/4W 1KΩ ±5%)	[R111]
56	0KY0R153U3340	AC		C	Resistor(1/4W 330KΩ ±5%)	[R112]
57	0KY0R353U1130	AC		C	Resistor(1/4W 11KΩ ±1%)	[R113]
58	0KY0R153U2430	AD		C	Resistor(1/4W 24KΩ ±5%)	[R114]
59	0KY0R153U4720	AB		C	Resistor(1/4W 4.7KΩ ±5%)	[R120]
60	0KY0R153U3920	AC		C	Resistor(1/4W 3.9KΩ ±5%)	[R121]
61	0KY0M131A0020	AE	N	C	Screw(3×8)	
62	0KY0L200C0232	BA	N	B	Transformer(2C23)	[T1]
63	0KY0R854E5020	AK	N	B	Variable resistor(1/10W 5KΩ)	[VR101]
64	0KY0D754A2410	AL		B	Varistor(ENC241D)	[Z1]
	(Unit)					
⚠ 901	RDENT2112AXZZ	BK	N	E	Power supply PWB unit	

11 CCD PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μF)	[C1]
2	VCKYPU1HF223Z	AA		C	Capacitor(50WV 0.022μF)	[C2]
3	QCNW-4692AXZZ	AH	N	C	Cable	[CN1]
4	VHITCD1208AP1	AX	N	B	IC(TCD1208AP)	[IC1]
5	VS2SC1815GR-1	AB		B	Transistor(2SC1815GR)	[Q1]
6	VRD-RC2EY222J	AA		C	Resistor(1/4W 2.2KΩ ±5%)	[R1]
7	VRD-RC2EY390J	AA		C	Resistor(1/4W 39Ω ±5%)	[R2]
	(Unit)					
901	DCEKD475AAX05	BE	N	E	CCD PWB unit	

12 Multifunction interface PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	VCEAEA1CW106M	AC		C	Capacitor(16WV 1.0μF)	[C1]
2	VCEAEA1HW104M	AB		C	Capacitor(50WV 0.1μF)	[C2]
3	VCEAEA1HW104M	AB		C	Capacitor(50WV 0.1μF)	[C3]
4	VCEAEA1HW104M	AB		C	Capacitor(50WV 0.1μF)	[C4]
5	VCEAEA1HW104M	AB		C	Capacitor(50WV 0.1μF)	[C5]
6	VCEAEA1HW104M	AB		C	Capacitor(50WV 0.1μF)	[C6]
7	QCNCW2488SC01	AF		C	Connector(9pin)	[CNDS]
8	QJAKZ2062SCZZ	AG		C	Jack	[CNRS]
9	RFILZ2021SCZZ	AK	N	C	Filter	[FL1]
10	VRD-RC2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[FL2]
11	VRD-RC2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[FL3]
12	RFILZ2021SCZZ	AK		C	Filter	[FL4]
13	RFILZ2021SCZZ	AK		C	Filter	[FL5]
14	VRD-RC2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[FL6]
15	RFILZ2021SCZZ	AK		C	Filter	[FL7]
16	VRD-RC2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[FL8]
17	VHIADM202JN-1	AR		B	IC(ADM202JN)	[IC1]
18	VRD-RC2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[R1]
19	VRD-RC2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[R2]
20	VRD-RC2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[R3]
21	VRD-RC2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[R4]
22	VRD-RC2EY000J	AA		C	Resistor(1/4W 0Ω ±5%)	[R5]

12 Multifunction interface PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
	(Unit)				
901	DCEKI312BAX01	BB	N	E	Multifunction interface PWB unit

50 Hardware parts

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
B1	XEBSD20P06000	AA		C	Screw(2×6)
B2	XEBSD30P10000	AA		C	Screw(3×10)
B3	LX-BZ2222AXZZ	AC	N	C	Screw
B4	XBPSD30P06K00	AA		C	Screw(3×6)
B5	XBPSN40P06K00	AA		C	Screw(4×6)
B6	XBBSD30P06000	AA		C	Screw(3×6)
B7	LX-BZ2138XHZZ	AB		C	Screw
B8	LX-BZ2182SCZZ	AB		C	Screw
B10	XEBSE30P10000	AA		C	Screw(3×10)
B11	XEBSF30P12000	AA		C	Screw(3×12)
B12	LX-BZ2200SCZZ	AB		C	Screw
B13	XEBSD30P08000	AA		C	Screw(3×8)
B14	XEBSF30P14000			C	Screw(3×14)
W1	LX-WZ2228AXZZ	AB	N	C	Cut washer

■ Index

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
[C]				
CBOX-2011AX01	7- 23	BD	N	E
CBOX-2011AX02	7- 23	BD	N	E
CBOX-2011AX03	7- 23	BD	N	E
CBOX-2011AX04	7- 23	BD	N	E
CCNW-4695AX01	1- 3	AL	N	C
CGERH2314AX51	1- 59	AP	N	C
CGERH2363AX01	1- 6	AK	N	C
CLEVP2254AX01	5- 1	AE	N	C
CLEVP2255AX01	5- 2	AE	N	C
CLEVP2256AX01	5- 3	AE	N	C
CPNLH2380AX03	1- 1	BG	N	E
〃	2- 901	BG	N	E
CPNLH2380AX07	1- 1	BG	N	E
〃	2- 901	BG	N	E
CROLP2334AX01	1- 18	AN	N	C
CROLR2362AX01	1- 45	AN	N	C
CROLR2363AX01	1- 46	AN	N	C
CSHEZ3348AX01	1- 88	AD	N	C
[D]				
DCEKC389JAXZZ	1- 4	CC	N	E
〃	8- 901	CC	N	E
DCEKC584JAXZZ	1- 4	CC	N	E
〃	8- 901	CC	N	E
DCEKC588JAXZZ	1- 4	CC	N	E
〃	8- 901	CC	N	E
DCEKC589JAXZZ	1- 4	CC	N	E
〃	8- 901	CC	N	E
DCEKD475AAX05	4- 1	BE	N	E
〃	11- 901	BE	N	E
DCEKI312BAX01	7- 24	BB	N	E
〃	12- 901	BB	N	E
DCEKL349BAX01	1- 5	BD	N	E
〃	9- 901	BD	N	E
DCEKP351BAX01	2- 1	BG	N	E
DCYOD475AAX02	4- 901	BN	N	E
DUNTK307BAXOG	7- 17	AZ	N	E
DUNTK307BAXOW	7- 17	AZ	N	E
[G]				
GBOX-2011XHZZ	7- 25	AS		C
GBOX-2012XHZZ	7- 26	AS		C
GCABA2289AXSD	2- 2	AP	N	D
GCABA2289AXSE	2- 2	AP	N	D
GCABB2290AXSD	1- 15	AZ	N	D
GCABB2290AXSE	1- 15	AZ	N	D
GCABB2290AXSH	1- 15	AZ	N	D
GCABB2290AXSK	1- 15	AZ	N	D
GCABC2291AXSA	1- 75	AL	N	D
GCABC2291AXSC	1- 75	AL	N	D
GCOVA2375AXZZ	1- 76	AN	N	C
GCOVA2376AXSA	1- 22	AQ	N	D
GCOVA2376AXSC	1- 22	AQ	N	D
GCOVA2378AXZZ	1- 77	AE	N	C
GLEGG2063AXZZ	1- 79	AC	N	C
[H]				
HPNLH2380AXSD	2- 12	AL	N	C
HPNLH2380AXSE	2- 12	AL	N	C
[J]				
JBTN-2202AXSA	2- 3	AG	N	C
JBTN-2202AXSC	2- 3	AG	N	C
JBTN-2203AXSA	2- 4	AF	N	C
JBTN-2203AXSC	2- 4	AF	N	C
JBTN-2204AXSA	2- 5	AD	N	C
JBTN-2204AXSB	2- 5	AD	N	C
JBTN-2205AXSA	2- 6	AD	N	C
JBTN-2205AXSB	2- 6	AD	N	C
JBTN-2206AXSA	2- 7	AD	N	C
JKNBP2074AXSA	6- 1	AD	N	C
JKNBP2074AXSC	6- 1	AD	N	C
[L]				
LBNDJ2006SCZZ	1- 13	AA		C
〃	6- 2	AA		C
LBNDJ2008SCZZ	1- 84	AA		C
LBSHP2078XHZZ	7- 16	AC	N	C
LBSHP2086AXZZ	1- 53	AC	N	C
LBSHP2088AXZZ	1- 7	AC	N	C
LFRM-2164AXZA	4- 2	AV	N	C
LFRM-2179AXZZ	6- 3	AN	N	C
LFRM-2180AXZZ	1- 28	AU	N	C
LFRM-2181AXZZ	5- 4	AV	N	C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
LHLDW1165AFZZ	1- 85	AE	N	C
LHLDW2341RCZZ	1- 82	AB	N	C
LPLTG2707XHZZ	3- 1	AE		C
LPLTM2791AXFW	1- 29	AD		C
LPLTM2885AXFW	1- 16	AQ	N	C
LPLTM2886AXFW	5- 5	AQ	N	C
LPLTM2887AXFW	1- 66	AQ	N	C
LPLTP2790XHZZ	3- 2	AD		C
LPLTP2884AXZZ	1- 30	AP	N	C
LPLTP2888AXSA	1- 67	AP	N	C
LPLTP2888AXSC	1- 67	AP	N	C
LPLTP2889AXSA	7- 1	AK	N	C
LPLTP2889AXSC	7- 1	AK	N	C
LPLTP2890AXSA	7- 2	AZ	N	C
LPLTP2890AXSC	7- 2	AZ	N	C
LSTPP2044XHZZ	1- 31	AF		C
LX-BZ2138XHZZ	50- B7	AB		C
LX-BZ2182SCZZ	50- B8	AB		C
LX-BZ2200SCZZ	50- B12	AB		C
LX-BZ2222AXZZ	50- B3	AC	N	C
LX-WZ2228AXZZ	50- W1	AB	N	C
[M]				
MCAMP2023AXZZ	5- 6	AD	N	C
MLEVP2248AXZZ	6- 4	AD	N	C
MLEVP2249AXZZ	1- 32	AC	N	C
MLEVP2250AXZZ	1- 47	AD	N	C
MLEVP2251AXZZ	1- 48	AD	N	C
MLEVP2252AXZZ	1- 33	AC	N	C
MLEVP2253AXSA	1- 8	AD	N	C
MLEVP2257AXZZ	3- 3	AG	N	C
MLEVP2258AXZZ	1- 34	AC	N	C
MSPRC2832AXZZ	1- 23	AC	N	C
MSPRC2920AXFJ	6- 6	AC	N	C
MSPRC2924AXFJ	3- 4	AC	N	C
MSPRC2926AXFJ	1- 68	AD	N	C
MSPRC2927AXFJ	1- 37	AC	N	C
MSPRC2928AXFJ	6- 7	AC	N	C
MSPRC2931AXFJ	1- 17	AC	N	C
MSPRC2960AXFJ	6- 15	AD	N	C
MSPRC2961AXFJ	6- 16	AD	N	C
MSPRC2964AXFJ	6- 5	AD	N	C
MSPRC2995AXFJ	1- 36	AC	N	C
MSPRC2996AXFJ	1- 35	AC	N	C
MSPRD2823AXFJ	1- 60	AC	N	C
MSPRD2929AXFJ	1- 38	AC	N	C
MSPRD2930AXFJ	1- 49	AC	N	C
MSPRD2962AXFJ	5- 7	AC	N	C
MSPRP2812SCZZ	3- 5	AE	N	C
MSPRP2817SCZZ	4- 3	AC	N	C
MSPRT2923AXFJ	3- 6	AC	N	C
MSPRT2932AXFJ	1- 69	AC	N	C
MSPRT2957AXZZ	3- 7	AC	N	C
[N]				
NBRGP2141AXZZ	3- 8	AC	N	C
NGERH2275XHZZ	1- 9	AC		C
〃	3- 9	AC		C
NGERH2279XHZZ	1- 61	AC		C
〃	5- 8	AC		C
NGERH2281XHZZ	5- 9	AD		C
NGERH2309XHZZ	1- 54	AC		C
NGERH2310XHZZ	1- 39	AE		C
NGERH2315XHZZ	7- 15	AE	N	C
NGERH2317XHZZ	3- 10	AC		C
NGERH2356XHZZ	3- 11	AC	N	C
NGERH2358AXZZ	1- 55	AC	N	C
NGERH2359AXZZ	1- 50	AD	N	C
NGERH2360AXZZ	1- 56	AE	N	C
NGERH2361AXZZ	1- 57	AE	N	C
〃	5- 10	AE	N	C
NGERH2362AXZZ	5- 11	AE	N	C
NGERH2365AXZZ	1- 70	AD	N	C
NGERH2366AXZZ	1- 71	AD	N	C
NGERH2367AXZZ	1- 62	AD	N	C
NGERP2318XHZZ	1- 24	AD		C
NROLP2332XHZZ	1- 63	AD		C
NROLP2334AXZZ	3- 12	AE	N	C
NROLR2333XHZZ	1- 10	AP		C
NROLR2364AXZZ	1- 58	AW	N	C
NROLR2365AXZZ	3- 13	AV	N	C
NROLR2377AXZZ	1- 11	AD	N	C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
NSFTM2268AXZZ	1- 51	AE	N	C
NSFTM2278AXZZ	6- 8	AH	N	C
NSFTM2279AXZZ	1- 64	AK	N	C
NSFTM2280AXZZ	1- 40	AK	N	C
NSFTZ2257AXZZ	3- 14	AE	N	C
NSFTZ2258AXZZ	1- 19	AE	N	C
[P]				
PCOVA2114AXZZ	1- 78	AE	N	C
PCOVA2115AXSA	7- 3	AL	N	C
PFLT-2006XHZZ	4- 4	AA		C
PFLT-2009AXZZ	1- 41	AD	N	C
PGIDM2478AXZL	6- 9	AD	N	C
PGIDM2478AXZR	6- 10	AD	N	C
PGIDM2479AXZZ	1- 52	AN	N	C
PGIDM2480AXSA	1- 72	AG	N	C
PGIDM2481AXSA	1- 12	AT	N	C
PGIDM2481AXSC	1- 12	AT	N	C
PGIDM2482AXZZ	3- 15	AP	N	C
PGIDM2483AXSA	1- 25	AE	N	C
PGIDM2483AXSC	1- 25	AE	N	C
PGIDM2484AXSA	1- 26	AE	N	C
PGIDM2484AXSC	1- 26	AE	N	C
PGIDM2485AXZZ	1- 65	AL	N	C
PGLSP2058XHZZ	4- 5	AE		C
PHOP-2095AXSA	1- 73	AN	N	C
PHOP-2095AXSC	1- 73	AN	N	C
PLNS-2049XHZZ	4- 6	AZ		C
PMIR-2070XHZZ	4- 7	AG		C
PMIR-2071XHZZ	4- 8	AH		C
PMIR-2072XHZZ	4- 9	AH		C
PSEL-2015SCZZ	1- 74	AB	N	C
PSHEZ3196AXZZ	4- 10	AC	N	C
PSHEZ3250AXZZ	4- 11	AB	N	C
PSHEZ3258AXZZ	4- 12	AD	N	C
PSHEZ3290AXZZ	3- 16	AD	N	C
PSHEZ3291AXZZ	2- 8	AD	N	C
PSHEZ3292AXZZ	6- 11	AE	N	C
PSHEZ3293AXZZ	1- 43	AH	N	C
PSHEZ3332AXZZ	1- 81	AE	N	C
PSHEZ3334AXZZ	1- 80	AC	N	C
PSHEZ3341AXZZ	1- 86	AC	N	C
PSHEZ3342AXZZ	1- 87	AC	N	C
PSHEZ3344AXZZ	1- 42	AD	N	C
PWIR-2028SCZZ	7- 18	AG	N	C
[Q]				
QACCZ2012XHZZ	1- 20	AT		B
QCNCM2401SC0B	8- 107	AA		C
QCNCM2442SC0B	8- 99	AB		C
QCNCM2465SC3J	8- 100	AF		C
QCNCM2499SC0I	8- 106	AE		C
QCNCM2499SC1D	8- 102	AG		C
QCNCM7014SC0B	8- 101	AD		C
QCNCM7014SC0F	8- 103	AB		C
QCNCM7014SC0G	8- 98	AB		C
QCNCM7014SC1E	8- 105	AC		C
QCNCM7014SC1F	8- 108	AD		C
QCNCW2488SC01	12- 7	AF		C
QCNCW2500SC1D	9- 23	AG		C
QCNW-3247SCZZ	7- 4	AH		C
QCNW-3975AXGY	7- 4	AH		C
QCNW-3976XHOG	7- 5	AT		C
QCNW-3976XHOW	7- 5	AK		C
QCNW-4320SCZZ	7- 33	BB		C
QCNW-4616XHZZ	7- 32	AN		C
QCNW-4690AXZZ	1- 2	AN	N	C
〃	2- 11	AN	N	C
QCNW-4691AXZZ	6- 12	AQ	N	C
QCNW-4692AXZZ	11- 3	AH	N	C
QCNW-4693AXZZ	4- 13	AD	N	C
QCNW-4694AXZZ	5- 12	AD	N	C
QCNW-4702AXZZ	6- 13	AE	N	C
QCNW-4704AXZZ	9- 2	AD	N	C
QJAKZ2046SCBB	9- 29	AH		C
QJAKZ2062SCZZ	8- 104	AG		C
〃	12- 8	AG		C
QJAKZ2065SC0D	9- 30	AG		C
QSOCZ2051SC32	8- 119	AC		C
QSW-F2224SCZZ	5- 13	AE		B
QSW-Z2206SCZZ	9- 58	AH		B
QSW-Z2226SCZZ	9- 59	AG		B

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
[R]				
RC-FZ3024SCZZ	9- 3	AG		C
RCILZ2104SCZZ	8- 134	AK		C
〃	8- 143	AK		C
〃	8- 147	AK		C
RCORF2063XHZZ	1- 44	AF		B
RCORF2064XHZZ	1- 14	AF		B
RCRSB0297AFZZ	8- 354	AD		B
RCRSQ1005LCZZ	8- 353	AE		B
RCRSQ2109SCZZ	8- 355	AL		B
RDENT2112AXZZ	1- 21	BK	N	E
〃	10- 901	BK	N	E
RFILZ2021SCZZ	12- 9	AK	N	C
〃	12- 12	AK		C
〃	12- 13	AK		C
〃	12- 15	AK		C
RH-IX2129SCZZ	8- 124	AY		B
RHEDZ2052AXZZ	6- 14	BR	N	B
RMOTZ2131AXZZ	5- 14	BB	N	B
RRLYD3130SCZZ	8- 352	AN		B
RRLYD3221SCZZ	9- 22	AN		B
RTRNZ2128XH01	9- 60	AP		B
[S]				
SPAKA110AAXZZ	7- 14	AH	N	D
SPAKA111AAXZZ	7- 13	AH	N	D
SPAKA114AAXZZ	7- 12	AH	N	D
SPAKA213AAXZZ	7- 21	AC	N	D
SPAKA234AAXZZ	7- 31	AK	N	D
SPAKC130AAXZZ	7- 11	AQ	N	D
SPAKC169AAXZZ	7- 11	AQ	N	D
SPAKC196AAXZZ	7- 11	AQ	N	D
SPAKC200AAXZZ	7- 11	AQ	N	D
SPAKP4381AXZZ	7- 8	AG		D
[T]				
TCADZ2516AXZZ	7- 9	AF	N	D
TCADZ2534AXZZ	7- 9	AF	N	D
TCADZ2539AXZZ	7- 28	AF	N	D
TCADZ2557AXZZ	7- 29	AF	N	D
TCADZ2559AXZZ	7- 29	AF	N	D
TINSE3728AXZZ	7- 6	AP	N	D
TINSE3748AXZZ	7- 6	AT	N	D
TINSK3758AXZZ	7- 6	AT	N	D
TLABH4161AXZZ	1- 27	AD	N	D
TLABH4163AXZB	7- 7	AC	N	D
TLABH4163AXZZ	7- 7	AC	N	D
TLABH4238AXZA	7- 19	AC	N	D
TLABH4258AXZZ	7- 20	AC	N	D
TLABM4182AXZZ	7- 10	AD	N	D
TLABM4268AXZZ	7- 10	AD	N	D
TLABP3078AXZZ	8- 357	AA		D
TSPC-3635AXZZ	7- 27	AD	N	D
TSPC-3664AXZZ	7- 27	AD	N	D
TSPC-3666AXZZ	7- 27	AD	N	D
TSPC-3669AXZZ	7- 27	AD	N	D
[U]				
UBATL2049SCZZ	8- 1	AF		B
UDSKA2002SCZZ	7- 30	AR	N	E
[V]				
VCCCTV1HH100D	8- 55	AA		C
VCCCTV1HH120J	8- 54	AA		C
VCCCTV1HH150J	8- 19	AA		C
〃	8- 21	AA		C
〃	8- 23	AA		C
〃	8- 28	AA		C
〃	8- 29	AA		C
〃	8- 32	AA		C
〃	8- 37	AA		C
〃	8- 42	AA		C
〃	8- 44	AA		C
〃	8- 87	AA		C
VCCCTV1HH180J	8- 50	AA		C
〃	8- 51	AA		C
VCCCTV1HH331J	8- 94	AA		C
VCCSTV1HL102J	8- 65	AA		C
〃	8- 89	AA		C
VCCSTV1HL391J	8- 83	AA		C
VCEAEA1CW106M	12- 1	AC		C
VCEAEA1HW104M	12- 2	AB		C
〃	12- 3	AB		C
〃	12- 4	AB		C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
VCEAEA1HW104M	12- 5	AB		C
〃	12- 6	AB		C
VCEAGA1EW476M	8- 10	AA		C
〃	8- 14	AA		C
VCEAGA1HW105M	8- 16	AB		C
VCEAGA1HW106M	8- 8	AA		C
〃	8- 13	AA		C
VCEAGA1HW107M	8- 6	AA		C
VCEAGA1HW225M	9- 13	AA		C
VCEAGA1HW226M	8- 2	AB		C
〃	8- 3	AB		C
〃	8- 4	AB		C
〃	8- 5	AB		C
〃	8- 7	AB		C
〃	8- 11	AB		C
〃	8- 12	AB		C
〃	9- 17	AB		C
〃	11- 1	AB		C
VCEAGA1HW475M	8- 9	AA		C
〃	8- 15	AA		C
〃	9- 7	AA		C
〃	9- 10	AA		C
〃	9- 12	AA		C
〃	9- 20	AA		C
VCKYPU1HB102K	9- 5	AA		C
〃	9- 6	AA		C
〃	9- 15	AA		C
〃	9- 16	AA		C
VCKYPU1HB103K	9- 4	AA		C
VCKYPU1HB221K	9- 14	AB		C
VCKYPU1HB222K	9- 8	AA		C
〃	9- 11	AA		C
〃	9- 21	AA		C
VCKYPU1HB332K	9- 18	AA		C
VCKYPU1HF223Z	9- 19	AA		C
〃	11- 2	AA		C
VCKYTQ1HF104Z	8- 70	AA		C
〃	8- 90	AA		C
VCKYTV1CF105Z	8- 38	AB		C
〃	8- 39	AB		C
〃	8- 43	AB		C
〃	8- 61	AB		C
〃	8- 62	AB		C
〃	8- 76	AB		C
〃	8- 78	AB		C
〃	8- 84	AB		C
〃	8- 93	AB		C
〃	8- 95	AB		C
VCKYTV1EB104K	8- 64	AA		C
〃	8- 69	AA		C
〃	8- 74	AA		C
〃	8- 86	AA		C
〃	8- 96	AA		C
VCKYTV1EF104Z	8- 17	AA		C
〃	8- 18	AA		C
〃	8- 20	AA		C
〃	8- 22	AA		C
〃	8- 24	AA		C
〃	8- 26	AA		C
〃	8- 27	AA		C
〃	8- 31	AA		C
〃	8- 33	AA		C
〃	8- 34	AA		C
〃	8- 35	AA		C
〃	8- 36	AA		C
〃	8- 40	AA		C
〃	8- 41	AA		C
〃	8- 45	AA		C
〃	8- 46	AA		C
〃	8- 47	AA		C
〃	8- 48	AA		C
〃	8- 49	AA		C
〃	8- 58	AA		C
〃	8- 66	AA		C
〃	8- 68	AA		C
〃	8- 71	AA		C
〃	8- 72	AA		C
〃	8- 73	AA		C
〃	8- 77	AA		C
〃	8- 79	AA		C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
VCKYTV1EF104Z	8- 80	AA		C
〃	8- 82	AA		C
〃	8- 97	AA		C
VCKYTV1HB102K	8- 30	AA		C
〃	8- 52	AA		C
〃	8- 53	AA		C
〃	8- 56	AA		C
〃	8- 60	AA		C
〃	8- 67	AA		C
〃	8- 88	AA		C
VCKYTV1HB103K	8- 57	AB		C
〃	8- 63	AB		C
VCKYTV1HB222K	8- 25	AA		C
〃	8- 75	AA		C
〃	8- 81	AA		C
〃	8- 91	AA		C
〃	8- 92	AA		C
VCKYTV1HB472K	8- 59	AA		C
VCKYTV1HB681K	8- 85	AA		C
VCQYNA1HM333K	9- 9	AA		C
VHDDAP202U/-1	8- 111	AB		B
VHD1SS133//-1	9- 24	AA		B
〃	9- 25	AA		B
〃	9- 26	AA		B
〃	9- 27	AA		B
VHD1SS355//-1	8- 109	AB		B
〃	8- 110	AB		B
〃	8- 112	AB		B
〃	8- 113	AB		B
〃	8- 114	AB		B
〃	8- 115	AB		B
VHEHZ2C1///-1	9- 63	AA		B
〃	9- 64	AA		B
〃	9- 66	AA		B
〃	9- 67	AA		B
VHEHZ27-1//-1	9- 65	AB		C
VHERD22FB3/-1	8- 356	AC		B
VHIADM202JN-1	12- 17	AR		B
VHIHEF4066BT1	8- 125	AF		B
VHIMC14053DR2	8- 126	AG		B
VHIMC74HCU04F	8- 117	AD		B
VHIM66230FP-1	8- 122	AY	N	B
VHINJM2113M-1	8- 129	AG		B
VHINJM2902M-1	8- 127	AF		B
VHINJM2904D-1	9- 28	AG		B
VHINJM318M/-F	8- 130	AF		B
VHIPST596CMT1	8- 131	AF	N	B
VHIR144FCRMVP	8- 121	BV	N	B
〃	8- 128	BV	N	B
VHIS2B256SL70	8- 123	AU	N	B
VHITCD1208AP1	11- 4	AX	N	B
VHIULN2003AN/	8- 118	AE		B
VHI27020FHH0E	8- 119	BN		B
VHPPC814X//-1	9- 32	AE		B
VHPPC817X7/-1	9- 31	AD		B
VHPSG206S//-1	8- 152	AG		B
〃	8- 153	AG		B
〃	9- 33	AG		B
VHPSNK15A24-1	4- 14	AZ		B
VHVERZV5D471/	9- 61	AC		B
〃	9- 62	AC		B
VHVICPS07//-1	8- 116	AA		B
VHVRA391PV6-1	9- 1	AE		B
VRD-HT2EY100J	8- 159	AA		C
VRD-HT2EY102J	9- 50	AA		C
〃	9- 52	AA		C
〃	9- 54	AA		C
VRD-HT2EY103J	9- 42	AA		C
〃	9- 44	AA		C
〃	9- 46	AA		C
〃	9- 47	AA		C
〃	9- 48	AA		C
VRD-HT2EY151J	9- 57	AA		C
VRD-HT2EY152J	9- 51	AA		C
〃	9- 53	AA		C
VRD-HT2EY153J	9- 43	AA		C
〃	9- 55	AA		C
VRD-HT2EY221J	9- 41	AA		C
VRD-HT2EY223J	9- 40	AA		C
VRD-HT2EY300J	9- 38	AA		C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
VRD-HT2EY332J	9- 49	AA		C
〃	9- 56	AA		C
VRD-HT2EY621J	9- 45	AA		C
VRD-HT2EY910J	9- 37	AA		C
VRD-HT2HY223J	9- 39	AA		C
VRD-RC2EY000J	12- 10	AA		C
〃	12- 11	AA		C
〃	12- 14	AA		C
〃	12- 16	AA		C
〃	12- 18	AA		C
〃	12- 19	AA		C
〃	12- 20	AA		C
〃	12- 21	AA		C
〃	12- 22	AA		C
VRD-RC2EY222J	11- 6	AA		C
VRD-RC2EY390J	11- 7	AA		C
VRS-TP2BD000J	8- 138	AA		C
〃	8- 140	AA		C
VRS-TS2AD000J	8- 132	AA		C
〃	8- 133	AA		C
〃	8- 135	AA		C
〃	8- 136	AA		C
〃	8- 137	AA		C
〃	8- 139	AA		C
〃	8- 144	AA		C
〃	8- 148	AA		C
〃	8- 149	AA		C
〃	8- 150	AA		C
〃	8- 151	AA		C
〃	8- 162	AA		C
〃	8- 199	AA		C
〃	8- 236	AA		C
〃	8- 260	AA		C
〃	8- 265	AA		C
〃	8- 276	AA		C
〃	8- 323	AA		C
〃	8- 349	AA		C
〃	8- 351	AA		C
VRS-TS2AD100J	8- 245	AA		C
〃	8- 287	AA		C
〃	8- 317	AA		C
VRS-TS2AD101J	8- 146	AA		C
VRS-TS2AD102J	8- 141	AA		C
〃	8- 142	AA		C
〃	8- 167	AA		C
〃	8- 252	AA		C
〃	8- 288	AA		C
〃	8- 308	AA		C
〃	8- 319	AA		C
〃	8- 332	AA		C
〃	8- 338	AA		C
VRS-TS2AD103J	8- 178	AA		C
〃	8- 179	AA		C
〃	8- 223	AA		C
〃	8- 230	AA		C
〃	8- 231	AA		C
〃	8- 237	AA		C
〃	8- 238	AA		C
〃	8- 239	AA		C
〃	8- 243	AA		C
〃	8- 247	AA		C
〃	8- 254	AA		C
〃	8- 255	AA		C
〃	8- 269	AA		C
〃	8- 273	AA		C
〃	8- 274	AA		C
〃	8- 281	AA		C
〃	8- 285	AA		C
〃	8- 289	AA		C
〃	8- 291	AA		C
〃	8- 294	AA		C
〃	8- 298	AA		C
〃	8- 301	AA		C
〃	8- 302	AA		C
〃	8- 303	AA		C
〃	8- 304	AA		C
〃	8- 309	AA		C
〃	8- 316	AA		C
〃	8- 322	AA		C
〃	8- 341	AA		C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
VRS-TS2AD103J	8- 345	AA		C
VRS-TS2AD104J	8- 233	AA		C
〃	8- 333	AA		C
VRS-TS2AD105J	8- 166	AA		C
VRS-TS2AD106J	8- 234	AA		C
VRS-TS2AD133J	8- 318	AA		C
VRS-TS2AD151J	8- 172	AA		C
〃	8- 180	AA		C
〃	8- 191	AA		C
〃	8- 193	AA		C
〃	8- 197	AA		C
〃	8- 198	AA		C
〃	8- 279	AA		C
〃	8- 286	AA		C
〃	8- 296	AA		C
VRS-TS2AD152J	8- 272	AA		C
VRS-TS2AD154J	8- 339	AA		C
VRS-TS2AD183J	8- 282	AA		C
VRS-TS2AD201J	8- 165	AG		C
〃	8- 168	AG		C
〃	8- 218	AG		C
VRS-TS2AD203J	8- 176	AA		C
〃	8- 251	AA		C
〃	8- 270	AA		C
〃	8- 271	AA		C
〃	8- 328	AA		C
VRS-TS2AD221J	8- 164	AA		C
〃	8- 184	AA		C
〃	8- 185	AA		C
〃	8- 186	AA		C
〃	8- 188	AA		C
〃	8- 189	AA		C
〃	8- 192	AA		C
〃	8- 195	AA		C
〃	8- 196	AA		C
〃	8- 200	AA		C
〃	8- 202	AA		C
〃	8- 203	AA		C
〃	8- 204	AA		C
〃	8- 205	AA		C
〃	8- 206	AA		C
〃	8- 207	AA		C
〃	8- 208	AA		C
〃	8- 211	AA		C
〃	8- 212	AA		C
〃	8- 214	AA		C
〃	8- 215	AA		C
〃	8- 216	AA		C
〃	8- 217	AA		C
〃	8- 220	AA		C
〃	8- 221	AA		C
〃	8- 222	AA		C
〃	8- 226	AA		C
〃	8- 227	AA		C
〃	8- 228	AA		C
〃	8- 266	AA		C
VRS-TS2AD223J	8- 161	AA		C
〃	8- 219	AA		C
VRS-TS2AD271J	8- 163	AA		C
〃	8- 170	AA		C
〃	8- 171	AA		C
〃	8- 173	AA		C
〃	8- 175	AA		C
〃	8- 177	AA		C
〃	8- 181	AA		C
〃	8- 187	AA		C
〃	8- 190	AA		C
〃	8- 194	AA		C
〃	8- 201	AA		C
〃	8- 209	AA		C
〃	8- 213	AA		C
〃	8- 232	AA		C
〃	8- 242	AA		C
〃	8- 244	AA		C
〃	8- 258	AA		C
〃	8- 261	AA		C
〃	8- 292	AA		C
〃	8- 297	AA		C
〃	8- 305	AA		C
〃	8- 315	AA		C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
VRS-TS2AD271J	8- 336	AA		C
〃	8- 337	AA		C
〃	8- 346	AA		C
〃	8- 347	AA		C
〃	8- 348	AA		C
VRS-TS2AD273J	8- 268	AA		C
VRS-TS2AD3R0J	8- 311	AA		C
VRS-TS2AD302J	8- 314	AA		C
〃	8- 325	AA		C
VRS-TS2AD303J	8- 259	AA		C
〃	8- 295	AA		C
VRS-TS2AD332J	8- 248	AA		C
〃	8- 327	AA		C
〃	8- 343	AA		C
VRS-TS2AD333J	8- 224	AA		C
〃	8- 249	AA		C
〃	8- 250	AA		C
〃	8- 262	AA		C
〃	8- 264	AA		C
〃	8- 280	AA		C
〃	8- 306	AA		C
〃	8- 310	AA		C
〃	8- 324	AA		C
〃	8- 340	AA		C
〃	8- 344	AA		C
VRS-TS2AD471J	8- 145	AA		C
〃	8- 182	AA		C
〃	8- 183	AA		C
〃	8- 210	AA		C
〃	8- 225	AA		C
〃	8- 235	AA		C
〃	8- 240	AA		C
〃	8- 241	AA		C
〃	8- 246	AA		C
〃	8- 256	AA		C
〃	8- 257	AA		C
〃	8- 263	AA		C
〃	8- 267	AA		C
〃	8- 277	AA		C
〃	8- 278	AA		C
〃	8- 283	AA		C
〃	8- 284	AA		C
〃	8- 299	AA		C
〃	8- 300	AA		C
〃	8- 312	AA		C
〃	8- 320	AA		C
〃	8- 326	AA		C
〃	8- 329	AA		C
〃	8- 330	AA		C
〃	8- 334	AA		C
〃	8- 342	AA		C
〃	8- 350	AA		C
VRS-TS2AD473J	8- 253	AA		C
VRS-TS2AD474J	8- 174	AA		C
VRS-TS2AD562J	8- 160	AA		C
〃	8- 290	AA		C
VRS-TS2AD623J	8- 335	AA		C
VRS-TS2AD680J	8- 169	AA		C
VRS-TS2AD681J	8- 275	AA		C
VRS-TS2AD820J	8- 229	AA		C
VRS-TS2AD822J	8- 313	AA		C
VRSTS2AD1742F	8- 307	AA		C
VRSTS2AD4752F	8- 293	AA		C
VRSTS2AD8662F	8- 321	AA		C
〃	8- 331	AA		C
VSDTC114ES/-1	9- 34	AB		B
〃	9- 36	AB		B
VSDTD114EK/-1	8- 154	AC		B
VSRNC1402//-1	8- 155	AC		B
〃	8- 156	AC		B
〃	8- 157	AC		B
〃	8- 158	AC		B
VS2SC1815GR-1	9- 35	AB		B
〃	11- 5	AB		B
[X]				
XBBSD30P06000	50- B6	AA		C
XBPSD30P06K00	50- B4	AA		C
XBPSN40P06K00	50- B5	AA		C
XEBSD20P06000	50- B1	AA		C
XEBSD30P08000	50- B13	AA		C

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK
XEBSD30P10000	50- B2	AA		C
XEBSE30P10000	50- B10	AA		C
XEBSF30P12000	50- B11	AA		C
XEBSF30P14000	50- B14			C
[0]				
0KY0C1A9R2210	10- 5	AG		C
0KY0C1A9Y1020	10- 13	AG		C
0KY0C151M2210	10- 8	AE		C
0KY0C162E1040	10- 12	AF		C
0KY0C176Q4720	10- 9	AL	N	C
0KY0C245Q1040	10- 3	AM	N	C
0KY0C251E1030	10- 7	AE		C
0KY0C251E4720	10- 6	AE		C
0KY0C3K7K2210	10- 4	AW		C
0KY0C374D3310	10- 10	AN		C
〃	10- 11	AN		C
0KY0D157A0060	10- 20	AG		B
〃	10- 21	AG		B
〃	10- 22	AG		B
〃	10- 23	AG		B
0KY0D221B0020	10- 24	AT	N	B
0KY0D251A0020	10- 16	AD		B
〃	10- 18	AD		B
〃	10- 19	AD		B
0KY0D266A0060	10- 25	AM		B
0KY0D461A3200	10- 26	AL		B
0KY0D466A0480	10- 27	AE		B
0KY0D466A0600	10- 17	AE		B
0KY0D754A2410	10- 64	AL		B
0KY0D763A4R00	10- 36	AN	N	B
0KY0H130A0050	10- 34	AT		B
0KY0H719A0010	10- 37	AP		B
0KY0K221B0090	10- 15	AP	N	C
0KY0K251A0020	10- 14	AK		C
0KY0K716A4R00	10- 28	AK		A
0KY0K758A4R00	10- 29	AT	N	A
0KY0L113J1830	10- 35	AQ		C
0KY0L200C0232	10- 62	BA	N	B
0KY0L551A0010	10- 2	AE		C
0KY0L551A0020	10- 1	AF		C
0KY0MPH006800	10- 33	AH	N	C
0KY0MPS027700	10- 32	AP	N	C
0KY0M131A0020	10- 61	AE	N	C
0KY0M850A0010	10- 30	AE		C
〃	10- 31	AE		C
0KY0R153U1010	10- 47	AC	N	C
0KY0R153U1020	10- 55	AB		C
0KY0R153U1050	10- 41	AC		C
0KY0R153U1810	10- 45	AC		C
0KY0R153U1830	10- 43	AC		C
〃	10- 50	AC		C
0KY0R153U2430	10- 58	AD		C
0KY0R153U3310	10- 54	AC		C
0KY0R153U3330	10- 46	AB		C
0KY0R153U3340	10- 56	AC		C
0KY0R153U3920	10- 52	AC		C
〃	10- 53	AC		C
〃	10- 60	AC		C
0KY0R153U3940	10- 42	AC		C
0KY0R153U4710	10- 44	AC		C
0KY0R153U4720	10- 59	AB		C
0KY0R153U6220	10- 48	AC		C
0KY0R153U6810	10- 51	AC		C
0KY0R153U8220	10- 49	AC		C
0KY0R353U1130	10- 57	AC		C
0KY0R854E5020	10- 63	AK	N	B
0KY0T351A0050	10- 40	AF		B
0KY0T358A0040	10- 39	AG		B
0KY0T644A0010	10- 38	AV		B

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK

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